The Builder.

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A FEW days ago we were called to Edinburgh to give evidence professionally on a matter of construction, which will not be uninteresting to some of our readers. The journey, in our days, is nothing. You take a seat in the express train from the Euston-square station at nine o'clock in the morning, and by half-past nine at night—twelve hours and a half, mind—you have left nearly 420 miles behind you, and are in the capital of Scotland.*

Nor need the day be lost: it offers, especially, a good opportunity to get through a tough book which you desire to read, and yet, with others on the table at home for choice, have delayed attacking. There are many nice stations on the way, from which hints may be gained; and though much of the road is uninteresting, there are parts which are particularly beautiful—as, for example, soon after passing Wigan (where the restoration of the old church, some time since mentioned by us, appears to be making rapid progress), through Lancaster, Kendal, and Windermere, to Carlisle.

At this latter place,—the cathedral of which most of our readers know, if only through Mr. Billings' interesting work illustrative of it,—the station is well deserving of examination. It is Gothic in style. The first-class refreshment room has an open wood roof of considerable size, and other striking features. Mr. Tite, whose hands must be pretty well tied up with lines, is the architect, and has similar jurisdiction as far as Aberdeen. In Edinburgh the permanent station, not yet completed, will be of considerable extent, and, apparently, of good character.

One striking, though natural, result of the close connection given to heretofore widely separated localities by the railway system, is the disappearance of local peculiarities. Dress, manners, thoughts, are becoming everywhere the same: the shop-windows display the same prints, music, and books, as you have left in London, and the same matter affords subjects for conversation here as there. Local prejudices and narrownesses will follow. Probably the only peculiarity which would be observable by a stranger during a long walk, is the occasional occurrence of a notice-board, marked, "This land to *feu*,"—in another word, to let; but with this difference from our lettings of land for building, that it is granted in perpetuity,—the "feu duty" being so long paid.

Those of our readers who have not seen "the modern Athens," should take an early opportunity of doing so. They have all heard of the contrast afforded by the old and new town,—the Edinburgh of romance and the Edinburgh of the last five-and-twenty years,—they know of Calton-hill and its monuments; the castle on the rock, high above the town; Arthur's seat and the Salisbury crags; the Scott memorial, work of poor Kemp; and houses ten stories high. They will probably expect to see finer buildings than are to be found there, though there are many of very great merit, but as respects the appearance presented by the city generally, the ever varying combination it presents, the splendid views afforded by the heights around it, their imagination is not likely to carry them beyond the reality.

Most carefully should the citizens preserve the natural beauties of their locality,—keeping a watchful eye both on their own town council and the Woods and Forests. The necessity for such watchfulness was shewn not long ago, when the destruction of Salisbury crags was commenced, to provide metal for road-making! Let them take care that no smug, prim villas creep up Calton-hill,—no awkward squad of settlers effect a location on Arthur's seat, singing, though with very different meaning, from the old song which Scott so loved,—

> "Now, Arthur's seat shall be my bed;
> The *streets* shall ne'er be 'fyled by me."

Even the Queen's drive, Victoria road, which has been formed at an immense expense, all round the latter, and affords such a ride as can no where else be obtained, is an approach to the trimming and subjugation of this noble hill, and barely escapes our lament instead of extorting our admiration. The variety of view here is quite unrivalled. Looking from one point we have the piled up city, old and new,—man and man's work. A few steps onwards, and in the place of this we get a perfectly rural scene, with far extending fields, the village of Duddingston and its quiet church. Again, but a little further, and the whole is entirely changed; the Firth of Forth spreads far out before us, and, skirting it, is seen the sea-port Leith and its pier.

Holyrood, famous in story, and which is close to the Queen's drive on the city side, displays, in the chapel attached to the palace, one of the few remnants of antiquity left in Edinburgh, and is a very interesting example of early English (early Scotch?) architecture. The advice of Knox "destroy the nest, and the crows will fly away," appears to have been fully and fatally carried out; nor is the preservative spirit yet recovered,* spite of Scott's malison on those who destroyed the City cross in 1756:—

> "Dun Edin's cross a pillar'd stone
> Rose on a turret octagon;
> But now is razed that monument,
> Whence Royal edicts rang.
> * * * *
> O! be his tomb as lead to lead,
> Upon its dull destroyer's head."

Another remnant of ancient Scotland, and one of the best specimens of Gothic architecture in Edinburgh is on the borders of destruction. The ancient collegiate church of Edinburgh (Trinity) has been purchased by the North British Railway Company for a waggon shed! The Scottish antiquaries made some show of fight, we believe, but resistance appears to have been unavailing.†

Moray House, in the Canongate, of which we gave a small wood-cut,* some time since, with its curious balcony, and stone spires on the gateway, is being repaired. There is much that is curious about this house, especially two domed and panelled ceilings,† and the terraced garden, with fountains and other decorations, at the back. The house was built in the early part of the 17th century, was once Cromwell's head-quarters, and afterwards the scene of important proceedings connected with the treaty of union with England.

The old Parliament House is a work of about the same period as the singular little structure last named, and deserves a visit, on many accounts. It is of considerable size, and has an open wooden roof, the expiring reflect of the beautiful roofs of the 15th and 16th centuries. As one of the last of a series, this roof is exceedingly interesting to the architectural inquirer.

In this noble apartment there are several good pieces of sculpture by Chantrey and others: we must specially mention a monument to Duncan Forbes, by Roubilliac—a splendid work, and one of the finest of the artist's productions,—his grace, elegance, and fine drawing, being displayed without the flutter and affectation which disfigure many of his figures. There appear to be few sculptors resident at this time in Edinburgh. Mr. Steele has nearly finished his statue of the Duke of Wellington, which is to stand opposite the Registry-office, and will add more to the sculptor's reputation than his sitting figure of her Majesty on the top of the Royal Institution, which, although well-intentioned (the pyramidal form is aimed at), is little less than a failure.

Mr. Ritchie, who has done much for the architecture of Edinburgh, is about a group of children for the doorway of the new Western Bank, which is nearly finished externally, and will be referred to again when we continue our notes next week. He has also two of the "Barons" for the House of Lords to execute, and has shewn reasons to the commissioners why they should permit him to vary the uniformity of armour, by dressing one of the statues in senatorial robes. Ritchie was a pupil of Thorwaldson, and, like all who knew that great man, speaks of him with affectionate reverence.

ARCHITECTURE AT THE ROYAL ACADEMY.

NOTWITHSTANDING the unquestionable decline in the influence of art in that one of its fields of development with which it is our more especial duty to concern ourselves,—notwithstanding that that most apathetic body of professors, the architectural, mailed in indifference to the welfare of their own order, as to their capability of doing public good, are content to rhapsodize on art, and lament their inability to exercise it, rather than to advance and popularise it; notwithstanding that the whole world has been ransacked in the search for fragments of all forms and ages, whilst the question of beauty has been little concerned in the search, and the question of ART—considered as the engine of the production of beauty and delight—never: notwithstanding that, and in the history of architecture for the first time in an accurate manner, ancient models have been delineated, without the true value of ancient models being felt—phases of the general false position of architecture, of which we have at different times spoken, and which "come tardy off" in these degenerate days, leave "the mission

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* The arrangements on the London and North-Western line are generally good; but we owe it to the public to note that the confusion on the platform at Euston-square station, on the occasion of the departure of the special train which on this occasion carried us, coupled with the want of attention to the passengers and their luggage, was very discreditable and without any justifying circumstances. We saw our portmanteau on a porter's barrow fifteen minutes before the train started, and yet were compelled to leave without it,—the only reply to our repeated statement that it had not been brought up, being the cool and not over-courteous remark—"We can't help it; if you don't get in, we shall go without you." It is true that the guard obligingly dropped a note at the first station, and that the trunk was forwarded by the next train, but this will in no degree excuse the confusion and inattention at starting. We hope this statement may lead those who have the power to make an improvement in this respect.

* Relative to Knox's own monument, we learn that the funds placed at the disposal of the Committee for raising this, amounting to about 3,000*l.*, have enabled them to secure all the property at Knox's Corner, in the Canongate, which is required for their purposes, including the ancient domicile of the Reformer.

† This church was founded by Mary of Guelders, wife of King James II., in 1462. The remains of the foundress, which were interred there, have been removed to the abbey of Holyrood. A cut of the north aisle of the church was given in THE BUILDER a short time since—see p. 114, *ante*. Illustrations of the church will be found in "The Baronial and Ecclesiastical Antiquities of Scotland," by R. W. Billings and W. Burn.

* P. 114, *ante*.

† One of these is engraved in "The Baronial Antiquities."

of art" in the system of the world unaided, and therefore powerless for the benefit of mankind;—notwithstanding all these particulars in the state of art, science, and practice, we could not have expected that any doubt should arise that architecture *is* an art, and kindred with painting and sculpture—nor, further, that she is the most complete impersonation of art, and as such properly comprises all attributes and capabilities of production within herself.

Architecture, something as well as art, is something more than the world calls "architecture." The painter and the sculptor may each produce the highest efforts of design in their limited range, without the slightest knowledge of what produces the beautiful in buildings, whilst the architect is wanting in the education which architecture properly requires, if he be ignorant of painting and sculpture. To produce beauty in architecture, painting and sculpture are almost indispensable, but, although there is no doubt that the combination of the decorative features of buildings with representations of natural forms enhances the beauty of the latter, we should hardly go to the extent of saying that the necessity for the use of the vehicle of art, in one case, is as great as in the other.

But it is unnecessary to urge further the inseparable relationship of those called *sister*-arts. The association, perhaps less apparent now than it was once, ought never to be interfered with, and the arts of architecture, sculpture, and painting, have, till lately, been deemed equally worthy of encouragement. In all well-constituted academies of art, the great demands of architecture in the system of academic instruction are recognised; we find classes for the study of theoretical architecture and the orders, classes for perspective, classes for ornament, and, even in those which profess to be, like the Royal Academy of London, merely academies of "art," construction itself not neglected. And this is right: the anatomy of buildings has no less concern with the beautiful in architecture, than the anatomy of the human form with the beautiful in painting and sculpture. The French Academy supports an academy at Rome, mainly for its architectural students, who certainly have done honour to their country by talented publications, of which we grieve to say the architects of England, as a body, are wholly ignorant. The Academy of London professes to send *one* architectural student about once in nine years, but at the last opportunity did not send any. Whatever be the reason for omitting to do so, we charge the omission as indicating one still greater on the part of the academy. In the Academy of St. Luke, at Rome (no art *could* be forgotten in "the eternal city,")—each class of artists are held to have equal claims to the honours of membership, and the presidency is held by an architect, a painter, and a sculptor, in rotation. In the Academy of London for some years past, whenever an election to the presidency has had to be made, we do not believe the idea has once been entertained of electing an architect, although it cannot be doubted that the architects who have been members of the academy, have been generally well qualified for the post, whether from their eminence as artists, as men learned in art, or as being fitted for the peculiar duties of the president on certain occasions, which duties have often rendered the selection from the class of painters a matter of the utmost difficulty. We believe that the chair of architecture is, and has generally been, filled so as to confer honour upon the Academy, and we might even contrast the attendance at the lectures of Sir John Soane, and at those of the present professor, with the average interest which is excited by the lectures on painting and sculpture.

The Royal Academy, indeed, is not an academy of ART, but a school of painting and society of painters, tolerating a few sculptors and architects in the list of R. A.'s, and at annual dinners, but rigidly excluding them from participation in the advantages which the Academy should confer upon all its members alike, and by preventing the architect and the sculptor having any influence over popular taste in their particular branches, rendering the title of "Royal Academy of Arts" a misnomer. To prove this, it is only requisite to enter the rooms where the works of architects and sculptors find indifferent light and begrudged space; but in the case of architecture there is still more and increasing ground for complaint. The teacher of perspective, the Academy might do its best for its students in choosing from the class of architects, who, judging from the incapacity observable in the works of painters generally, are the only artists who properly understand it. Indeed, so important is the knowledge of perspective to the architect, that we might be justified in expecting to find this important office held by an architect in all cases. In the Royal Academy it is always held by a painter.*

We will say nothing against the Academy, because of the miserably inadequate advantages which it holds out to architectural students; but it is bad indeed to find its attempts to foster a taste for architecture in the public, annually grow less and less. We need not say another word of the room now miscalled "the Architectural," or of the indifference of the architects who are members of the Academy, to the advancement of their art; they, the Institute, and the profession generally, are alike indifferent to what ought to be matter of earnest endeavour to all. We have shewn sufficiently, that we condemn the principle which allows any one of the sister arts to be secondary in importance, or less worthy of attention in an Academy of Arts. We have shewn that we believe architecture to be eminently one of those arts, whose humanizing influence contributes to the attainment of virtue and happiness, and that it is the duty of all who may be placed in the position to develope such influence, by creating and extending a love of it amongst the public, to use the powers which are allowed them. We entertain a strong opinion of the advantages of architectural exhibitions, and whilst we think that the value of the more frequent exhibition of those drawings which can be fully understood merely by professional men, is not properly appreciated by architects, we hold that every opportunity should be taken to familiarize the popular eye with such representations of buildings as can be generally comprehended. For one description of architectural exhibitions, either by promoting more frequent exhibition of competition designs, or by forming collections occasionally, in their own rooms, the Institute might, we think, do something, were it not, as we have said, oppressed with the general apathetic *incubus*. A small architectural society at Manchester, which we fear is now defunct, did much in a few years with the object of improving the system of competitions, and through that means towards advancing the art, by throwing open its rooms for the exhibition of designs sent in competition, which had to be collected at great expense after they had been returned to their owners, and might be imitated by the Institute in aid of the art and the class, which we hold they are specially chartered to foster and protect. But the exhibition of coloured perspective views at the Royal Academy, is calculated to be of the greatest benefit to architecture, as long as it meets with something like the attention which architecture requires in an Academy, or which is given to painting in the Academy of London. This attention it has by no means received; it has become gradually less and less interesting and improving to the public, less advantageous to architects, and is now scarcely valued in any degree by them. Our friend of the *Art-Journal* gives the *coup-de-grace*, the last kick, by coolly saying that architectural drawings "have no business" in the gallery. We think we might just as reasonably say, that being a journalist of art, he has no business to meddle with architecture;—*lucus a non lucendo;* we would rather welcome him as a co-operator in the work, to which we are sure he in his better moments endeavours.

THE NELSON TESTIMONIAL.—Another of the alto-relievos intended to adorn the pedestal of the Nelson column, is completed, and on the eve of casting. The subject is illustrative of the battle of Copenhagen, in which Mr. Ternouth, the artist, has seized a well-known incident (sealing the dispatch) which strongly marked the coolness and forethought which prevailed on all occasions in the mind of our great naval hero.

* We would not have our remark apply disparagingly in any way to the present professor, Mr. Knight, who, we believe, performs his duty most efficiently. We are dealing with the broad principle.

THE THEATRES AND PORTICOES OF ANCIENT ROME.

BY THE REV. R. BURGESS, B.D.*

IN looking among my antiquarian and literary stores to prepare a subject for the Institute, I again found that it was not necessary for me to go out of old Rome, for although in a series of papers spread over some twelve years, I have led you "O'er steps of broken thrones and temples," and placed you in forums, baths, or halls, I have never yet described to you the theatres and porticoes which formed so important a feature in the architectural beauties of Rome.

The amphitheatre was an edifice unknown to the Greeks, the theatre was hardly ever naturalized among the Romans, and with the exception of some tragedies, ascribed to Seneca, which are lost, it does not appear that a single Roman tragedy was ever composed upon a Roman subject. Porticoes which were generally in the vicinity of theatres and circuses at Rome, are the natural growth of a climate subject to great heat and sudden rains: we lose in these northern regions that great ornament of a city the portico. Our admiration is limited to arcades and covered markets, which it must be confessed are more for use than ornament. But I return to the theatre. The ancient and modern drama differ as widely as the buildings in which they were respectively acted, and I shall hardly succeed in making my Roman theatre intelligible, unless I first indicate a few of the leading features which run through the Greek drama and its Roman descendant. The subject is by far too vast and intricate for me to attempt anything like an essay upon the Greek stage, and therefore I must limit my observations to what is strictly necessary for explaining the internal arrangements of the edifice. The Greek drama dealt more in set speeches than in broken dialogues, and did not admit more than three interlocutors at once: the action or event represented was brought within the space of time, in which it might in reality have been accomplished. As a general rule there was no change of scene during the piece. In every tragedy there was a body called a chorus, who took no part in the action of the piece, but reflected upon what was going on, and generally expressed what might be supposed to be the sense of the audience. The chorus did not come upon the stage, but occupied the orchestra, varying the dialogue which they sometimes held with the actors by choral songs and dancing. These terms of *stage* and *orchestra* I shall have shortly to explain.

Dramatic entertainments, both in Greece and Rome, formed part of the public expenditure, or they were exhibited gratuitously by some wealthy or ambitious citizen. The theatres, therefore, were of immense size, for they were meant to contain (in Greece, at least) the whole male population of great cities. The performance usually took place also in an uncovered theatre in Greece, but Roman luxury, at a later period, invented the awning. I once described to you, when I read a paper on the Colosseum, how this awning was contrived to cover such an immense space; and I must be allowed to suppose that you have not entirely forgotten that description. If any of you are desirous of satisfying your curiosity upon the Greek stage, I must refer you to Butenger de Theatro, for I now hasten to the buildings themselves, which it is the principal object of this paper to describe. The origin of the theatre is rather ignoble;—it was originally a waggon, in which Thespis conveyed his actors about, with their faces besmeared with lees of wine, and from which they spoke their parts to the crowd assembled around them. To the ambulatory waggon of Thespis succeeded a moveable wooden structure, which was set up and taken down at pleasure, and it was in consequence of one of these structures having given way under an unusual crowd, that the first stone theatre was erected in Greece, by Themistocles, not long after the defeat of Xerxes. From this they began to increase in number, and we have the remains of several yet existing, both in Greece and in that part of Italy which was Greek in language and customs long after it came under the Roman dominion. We have also those

* Read at a meeting of the Royal Institute of Architects, already noticed.

remains of Greek theatres in Rome, to which I shall shortly direct your attention. A theatre became so necessary an appendage to a town, that Vitruvius gives systematic direction concerning the selection of a site. In his fifth book, cap. 3, we have the following:—"When the forum is finished, a healthy situation must be sought for, wherein the theatre may be erected, to exhibit sports on the festival days of the immortal gods, for the spectators are detained in their seats by the entertainment of the games, and remaining quiet for a long time, their pores are opened and imbibe the draughts of air, which, if they come from marshy or otherwise unhealthy places, will pour injurious humour into the body. Neither must it front the south, for when the sun fills the concavity, the inclosed air, unable to escape or circulate, is heated, and then extracts and dries up the juice of the body. It is also to be carefully observed that the place be not dull, but one in which the voice may expand as clearly as possible." One cannot let pass this quotation from the great architect of the Augustan age, without remarking that the selection of a site for an important public building was considered by Vitruvius as falling within the province of the architect. A healthy place for the theatre selected, we come next to consider its shape and disposition.

The form of the Greek Theatre originated, as is thought, in the natural recess of a hill side, and most of the theatres whose vestiges I have visited in Greece, occupy that position. Manteneia, built in a marshy place, offers an exception, and I believe there is another exception in Asia Minor; but it was evidently the practice to lighten the labour of erecting such buildings by making use of a ravine, or locality adapted to the purpose. At Megalopolis I was able to trace the whole cavea or hollow of the theatre, partly cut out of a hill; but the seats are overgrown with thick brushwood. The same economy is observed in most of the Greek stadia also, and even the council of Areopagus sat on seats, cut out of, or inserted into Mars' hill. At Nicopolis, near Prevesa, the form of the theatre on the hill-side is preserved, and much of the proscenium. At Smyrna I was able to trace the cavea in a similar position, and also at Ephesus we get to the slope of Mount Prion, which overlooked the Temple of Diana, in the plain of the Cayster, before we find the theatre. Whilst the Greeks, however, hewed seats out of the rock, or excavated to a depth suitable to their purpose, as the nature of the ground allowed, the Romans usually built their theatres upon arches, and massive walls rose (as we see the theatre of Marcellus still existing at Rome), with two or three orders, like the Colosseum. The hollow which perhaps originally was adjusted according to the nature of the ground, in no definite curve, ended in a perfect semicircle. This was called in Greek "κοιλον," and in Latin "cavea," and was the part for the audience. The other part was devoted to the business of the play, and and thus we arrive at the two principal parts or divisions of the theatre. The κοιλον, or cavea, is easily described; it was bounded by the segments of two concentric circles, the inner arc separating it from the orchestra; in the Roman theatre it seldom exceeded a semicircle, but sometimes the extremities of the semi-circular arc were prolonged by straight lines; the Greeks took more of the circumference of the circle, and cut the κόλον by lines drawn from its extremities converging towards the centre of the circle, by which arrangement more space was made in width for the scene or stage. The cavea was fitted up with rows of seats rising in succession so as to afford each tier an uninterrupted view: the whole was divided, as in the amphitheatre, into flights by διασωματα, or "prœcinctiones," which is the Vitruvian term for our landing-place. The prœcinctio ran round the whole, and afforded an access from one flight to another. The entire arc was again cut into subdivisions, called κερκιδες, in Latin, *cunei*, from being formed like wedges: the lines which effected those subdivisions were called κλιμανες, or *scalæ*, these (which in the Roman circus were called *viæ*) led from the bottom to the top of the theatre; and they all converged to the centre of the orchestra. The lowest seats were considered the best, and were, in fact, the reserved seats for the magistrates and persons of office. As the audience rose in height, it descended in quality, until it reached the open portico at the very top, which has its counterpart in our shilling or sixpenny gallery. This portico, however, in an uncovered building was of some use in confining the sound and giving shelter to the spectators from a passing storm. A κοιλον, or cavea, such as I have now described, would contain, in some of the largest theatres, as many as 30,000 or 40,000 spectators, which is about the capacity of those whose remains are yet to be seen in Rome. I now come to the other part of the theatre, which is more complicated and more difficult to describe. In Greek we have to deal with the three terms of ορκησρα, οκηνη, and παρασκενια. In the Roman language, we have the three corresponding terms of orchestra, pulpitum, or scena, and postscenium, to which we are to add the porticus. I shall content myself with describing the Roman arrangements, and simply pointing out where the Greek theatre differed. Taking the cavea to be a semicircle, the concentric arc which separates the audience was also a semicircle, and this space, bounded by the diameter, was the orchestra,—not so called from anything relating to music, but because it was the place for the dancers. In the Greek theatre the segment was less than a semicircle; but if the circle be completed and a square inscribed in it, whose sides are parallel to the diameter, the side farthest from the cavea fixes the front of the stage; but in the Roman theatre the diameter itself determines the front of the stage, or pulpitum. The stage, therefore, in the Roman theatre, is brought nearer to the audience, and made deeper. The length of the stage was two diameters of the orchestra. The increased depth was rendered necessary on account of the greater number of persons assembled upon it; for the Romans put both the chorus and the musicians upon their stage. The points from whence the several staircases began to ascend the cavea were fixed by the vertexes of four equilateral triangles, inscribed within the circle (when completed) of the orchestra. In the Roman theatre, as we have already observed, the front of the stage was called the pulpitum; and it was from that part that the interlocutors spoke. Some think the pulpitum was a little elevated above the level of the stage; but at all events, the word has passed into use for designating a place to speak from in our sacred edifices. The lowest range of seats was raised above the area of the orchestra (one-sixth of its diameter), and the seats themselves did not exceed 1 foot 4 inches in height. The stage in the Roman theatre was only elevated 5 feet above the seats in the orchestra: in the Greek theatre it was double that height. I have only hinted at the geometrical precision with which all these things were defined, and I shall relieve you from such dry details by a reference to the drawings behind me. The postscenium speaks for itself: it was a long narrow gallery behind the scene, where the actors retired, and where apartments or compartments were provided for them. From the postscenium were passages into the porticoes and gardens, which generally surrounded the theatres: but to these I shall have occasion to refer when I have finished the history and description of the theatres at Rome, to which I now come.

I have already remarked, that the earliest theatres at Rome, as well as at Athens, were but temporary erections of wood. The Romans were satisfied with standing-room for 200 years, and no seats were allowed, "lest," as Tacitus says, "if the people sat, whole days might be spent in idleness." Notwithstanding this prohibition to build permanent theatres, the temporary edifices were constructed with a magnificence which surpasses all belief. The wealth which supplied those theatrical exhibitions was generally the plunder of rich provinces, easily earned, and as easily dissipated, merely to obtain favour with the people, and procure still more lucrative appointments. All the bribery and corruption that ever came before a committee of an English House of Commons sink into insignificance compared with those times "when Rome was free." The treating of our "worthy and independent electors" at the open house of the candidate was economy and parsimony compared with the lavish expenditure of a candidate for the honours and emoluments of a Roman governorship; and we cannot doubt, that whilst those worthy citizens were feasting for whole days at the expense of a Scaurus or a Curio, they would be loud in the praises of liberty; and had they known how to put their exclamations into the polite language of modern Europe, the air would have resounded in the midst of those entertainments with "Vive la Republique." It was not until the year of the city 699 (that is within 53 years of the Christian era), that a theatre of solid materials was built at Rome, and this was constructed by Pompey on his return from Asia, at the close of the Methridatic war; but even Pompey found it expedient to pay a deference to the popular feeling. "Therefore," says Tertullian, "Pompey the Great, less great by his theatre only, when he erected that stronghold of wickedness, dreading lest the rebuke of the censor might injure his memory, he built a temple to Venus on the top of it, and when he invited the people to come to the dedication, he did not call it a theatre, but the Temple of Venus, to which," he said, "we have subjoined seats for seeing shows." The seats were therefore considered as the steps by which to ascend to the temple. We may call this either a pious fraud or a legal fiction. A piece of marble was found, in 1525, near the site of Pompey's Theatre, on which Marliano read the words, "Veneris Victricis." This building was erected in the third consulate of Pompey, and when the inscription came to be placed on the frieze, a dispute arose whether it should be *cos. tertio* or *tertium*. The matter was referred to Cicero, who advised the disputants to settle the controversy by writing *cos. tert.*

At the dedication of his famous theatre, Pompey produced twenty elephants; and when he was accused in the senate of introducing too much luxury into the city, he convinced the conscript fathers that it was an economy to build a solid theatre at once instead of raising a temporary structure on every occasion of giving shows. The Temple of Venus served very well as a pretext for making seats "*gradus spectaculorum*;" but it could not equally be alleged for erecting a solid stage. It was not until the reign of Tiberius that this part of the theatre was added, and finally completed by Caligula. It was dedicated anew by the Emperor Claudius, who restored it after a fire, and it reached its greatest splendour in the time of Nero. Two vanquished chiefs, that came from the north of Germany to render submission to the emperor, were taken to Pompey's theatre in order that they might see the greatness of the people. It contained, according to Pliny, 40,000 spectators; and when Tiridates, King of Armenia, came to Rome, Nero caused the whole to be gilded, to shew off the magnificence of the Romans to the vanquished Asiatic. It passed through a succession of fires until Theodoric commissioned Symmachus to rebuild it; but not long after it shared the fate of the rest of the splendid edifices of Rome, and finally came into possession of the Ursini family, who occupied that quarter of the city in the wars of the middle ages. In the fifteenth century, an inscription, found with the name of Pompey, directed the antiquary to find out its site. Another indication of the place where this theatre stood was given in the finding of the famous statue which is now in the Palazzo Spada. That statue was found under the partition wall of a house, and lying across in such a way as to give two proprietors of the house a claim to the treasure: not able to agree about dividing the spoil, they came to the resolution of cutting Pompey in two, and each man taking his own half. The matter having reached the ears of Cardinal Capodifezzo, he hastened to Pope Julius III. to inform him of the judgment that had been pronounced upon the statue. The astonished Pope dispatched a messenger with all haste, and sent 500 scudi to be divided between the litigants, instead of Pompey. Flaminius Vacca, who relates this anecdote, says the statue was found near the Palazzo della Cancelleria, in the Vicolo dei Scutari. The statue did not stand in the theatre, but in the Curia which Pompey built as an appendage to it; and the belief still obtains that it is the statue at the feet of which Cæsar fell. Being thus directed to the site of this famous building, we find ourselves in the immediate neighbourhood of the Church of St. Andrea della Valle. From near that church to the Palazzo Pio, the site is marked by a gradual

rising of the ground, but no vestiges meet the eye. In order to see the remains of Pompey's Theatre, we enter the court-yard of the Palazzo Pio, and, descending into the vaults upon which the Palazzo is built, we find ourselves, at the depth of 40 Roman palms, among the foundation arches. These have been originally hollowed out of the natural rock, and they are pointed at the angles with large blocks of peperine stone. One of the "Cunei" or sections of the cavea belonging to the lowest tier may be perfectly traced; and, after ascending to the court-yard again, and entering the stables, we see a second story of arches for supporting the seats. The construction is remarkable for its solidity; and it would not be difficult to trace, among the modern buildings and in the cellars of the Palazzo, at least one-half, perhaps two-thirds, of the whole cavea. I will not stay to describe to you blocks of peperine and "opus reticulatum,"—for the great point gained by tracing the "cunei" is the fixing of the position of the scene or stage. This appears to have reached very near the present site of the Church of St. Andrea. But the most remarkable circumstance attending an investigation of the buildings erected by Pompey in this part of Rome is the being able to present a ground-plan of them, although they have almost all vanished from off the face of the earth. In the sixteenth century there was found behind the Church of SS. Cosma and Damiano a plan of ancient Rome, done in marble, and which had served to encrust the walls of the temple (it is supposed) of Romulus and Remus. This marble map, where the ground-plan of all the public buildings was laid down, was found broken into fragments; some of them irrecoverable; others, gathered up with care and put together, presented an idea of a building. They now encrust the walls of the staircase of the Capitoline Museum, and are known under the designation of the Pianta Capitoline.* The two fragments most perfect happen to represent the Theatre of Pompey and the Portico of Octavia. By a reference to that fragment of the Pianta, you will not only see the ground plan of the theatre, but also of some other buildings, which were attached to it. Vitruvius cites the Porticus Pompeiana as an example of what a portico should be, when attached to a theatre for the convenience of the actors, or for the people to take shelter in in case of rain. We know, from Martial, that Pompey's Portico had a hundred columns. Eusebius calls it, in consequence, Hecatonstylon. The "Pianta Capitolina" exhibits some of those columns, but the fragment is imperfect. This celebrated portico was painted by artists of renown—Antiphilos, Pausias, and Niceas—the subjects being suited to the atmosphere which Ovid's lovers breathed. About the portico were rows of plane trees, interspersed with stone statues of beasts; and a fountain threw up, or poured out, its sparkling waters. The Pianta Capitolina exhibits two rows of columns, running in a direction towards the river, and not unlikely conducting to a grove along the banks of the Tiber. Besides these appendages to the theatre, there was the Curia, or Senate-house, which is, no doubt, identical with the "Regia Theatri" of Suetonius: but I must forbear to expatiate beyond the proper limits of my subject. A careful inspection of that part of Rome where all those buildings stood, with the aid of the Pianta Capitolina and the antiquarian notices which I have cited, might still furnish a fine subject for the genius of a restoring architect; and when we consider that those extensive and magnificent buildings (whose very remains, at the end of nineteen centuries, excite our wonder) were erected out of the private resources of a single individual, it will be long before we find in another republic a popular favourite, who may vie in wealth, taste, and splendour, with citizen Pompey.

I shall pass quickly over the next theatre, which time and floods have not spared. It was erected in the twelfth year of the Christian era, by Cornelius Balbus, in compliment to Augustus, and was capable of containing 33,000 spectators. I am not aware that a vestige of this theatre remains, but Piranesi took considerable pains to ascertain the site, and found some remains of one of the "Cunei." The Palazzo, and Monte Cenci, now point to where it stood, and Camucci, one of the oldest of Roman antiquaries, who probably saw some remains of it in his time, states that from its vicinity to the Tiber, it frequently suffered from inundations. We are not aware of any portico attached to this theatre, but there was a crypta Balbi, which stood near it, and of this there are some remains.

The third theatre which adorned imperial Rome was that of Marcellus, and along with it I take the portico of Octavia: when I have given you some account and description of these two objects, I shall relieve you from this tedious *conversazione*.*

* These fragments were first engraved and illustrated by Bellario, and are reproduced at the end of tom. iv. of the Grævius' Roman Antiquities.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE TRIFORIUM.

AT the closing meeting of the session of the institute, which was numerously attended, Mr. Bellamy took the chair; Mr. Chas. F. Reeks was elected an associate. A list of donations was then read, including a communication by Mr. Roberts on the subject of labourers' cottages adapted to agricultural districts, with specifications, &c., according to a design recommended by the Society for the Improvement of the Condition of the Labouring Classes, and to which the chairman drew attention. There were also amongst the donations, particulars as to the great clock at Westminster, presented by Mr. Bellamy.

Mr. Eaton Hodgkinson was then introduced on his election as an honorary member of the institute, when he was addressed by the chairman, who said the institute hailed with satisfaction the advent to their ranks of a gentleman whose investigations into the nature and the laws which regulate one of the most dangerous materials with which architects and engineers had to do, had paved the way to a better knowledge of that material, and especially entitled him to the thanks of their profession.

Several foreigners were introduced by Mr. Donaldson, among whom was Dr. Forchámmer, professor in the University of Keill.

The monthly report of the committee on students was read, and prize books were awarded to Mr. Thomas Hill and Mr. Bright Smith, when the opportunity was taken to recommend the students to adopt a larger scale of drawings, to put in simple tints, and carefully project their shadows.

The Chairman stated that Earl de Grey had been quite unable, from the precarious state of Lady de Grey's health, to preside at this meeting, as was expected, and that the presentation of the medals and prizes would be postponed till the opening of the ensuing session.†

A discourse was then delivered by Professor Willis, on the triforium of ancient churches, in which he displayed much research and ingenuity in unravelling the mystification into which successive alterations, and changing purposes and habits, and meanings of terms have plunged this question. As for the term itself, there was something rather curious in its history. The only ancient work in which such a term could be found at all, was a history of Canterbury (by Gervase), in which it occurred in three places, and with a local meaning quite different from the sense in which it is now used. He verily believed that the modern term was a mere clumsy latinization of 'thoroughfarium.' In the Basilicas the manifest triforium was an upper gallery, high and lofty, and so arranged that men with business to transact might have freedom to walk and talk without interruption. In front was a high parapet, for the sake of privacy; in fact, it was a practicable gallery for business transactions. The first ecclesiastical triforium was that of St. Sophia, at Constantinople. Privacy was here, too, more particularly preserved, as it was intended for women, the separation of whom from the men was thus provided for by the formation of an upper floor. In the Ravenna churches the triforium was still a practicable gallery; and where flat roofs were used, it is evident there was a reason for the introduction of a triforium other than the mere desire to turn the space beneath a high roof to some account, or to get rid of the difficulty by converting it into a gallery without reason or purpose at all. The professor then, with the assistance of diagrams and models, referred to the peculiarities and alterations affecting the triforium in a multitude of churches, including, as to its origin, those in the east, a few in Italy, with the early basilican churches at Rome, Romanesque and Lombard buildings, with curious triforia. On the banks of the Rhine he remarked, no ancient triforia were to be found, nor in the Romanesque churches of Germany. In its ritual use the sexes had changed places, but at length the triforium went to sleep with ancient usages, and was lost. The awkward way of getting rid of the triforium at York was pointed out by aid of models, &c., and also the curious changes at Ely. One great object in many alterations of the triforium was evidently to remove darkness; and thus the triforia, in many cases, became practicable galleries lighted from without. The way in which high roofs were converted into flat ones, with the outer wall raised and ornamental windows, visible from the body of the church, introduced, was ingeniously illustrated by models made of card-paper, stuck into mortices sunk in a base plan, and capable of being transfigured in a moment like the changes in a harlequin's dress. The professor, ostensibly for behoof of the students, described the way in which they were prepared, mounted, taken to pieces, and stowed away into portfolioes like any other mere flat drawings. In some of them all the three or four sides of the model consisted of but one piece, tinted, cut out, and folded into proper form when mounted. By these means the alterations from one form to another, in several edifices, were rapidly illustrated.

The chairman said, that of all vexed questions, none had been involved in greater obscurity than the subject of the triforium, and none had given more scope to the imagination; but Professor Willis had entered practically into this question, and by a comparative analysis had shewn them clearly that triforia were really lighted thoroughfares. His discourse had carried to his mind an entire conviction. As to the models; there was a simplicity as well as ingenuity in these models, that he especially recommended students, in connection with what had been already said, to carry out substantially.

Some discussion then ensued between Mr. Donaldson and Mr. Willis on the subject of the term "early English," which Mr. Donaldson declared he did not think sufficiently definite, while, on the contrary, Mr. Willis regarded it as of value, chiefly because it involved *no* definite hypothesis, but was a mere general term ranking with others, such as early German, early French, &c., each of which comprehended peculiarities.

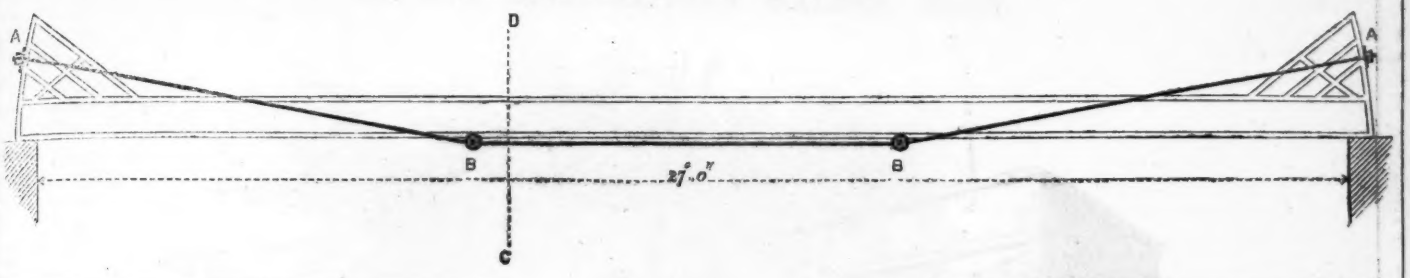
Mr. Tite asked whether the period was known when that division of the sexes to which allusion had been made was most prevalent or most generally ceased, as it might shed some light on various particulars connected with the triforium, and the history of its changes or alterations?—In reply, Mr. Willis admitted that his knowledge on this particular point was rather imperfect. He feared it was impossible to form a continued history of the triforium, and its changes in the western churches. After the period when processions to chapels in the different stories, including the triforium, ceased, it had failed in use and died out. The time of the Reformation was hinted at as probably a critical period in the history of the triforium, the use of which, as the chairman observed, then ceased, and buildings were no longer erected on the same type; but the separation of the sexes did not then at once cease.

The chairman announced that the council were making an arrangement to furnish members with copies of the papers read before the Institute, and he hoped it would be matured before the opening of the new session. In announcing the close of the present session, and the opening of the new on 6th November, the chairman exhorted his friends to make the most of their time in preparing something worthy of the attention of the Institute, for which, in the present locked-up state of the Continent, they would probably have more opportunity and leisure at home than usual.

* The remainder next week.

† The death of this estimable and accomplished lady, which has since occurred, will be deplored by all our readers who remember her kind receptions and considerate attentions.

ELEVATION OF GIRDER.



EXPERIMENTS ON A GIRDER TRUSSED WITH WROUGHT-IRON RODS.

THE following experiments made at Mr. Cubitt's works, Thames Bank, on a girder trussed with wrought-iron rods, will be found to supply important deductions, and claim the serious attention of engineers, especially of some who are at this moment about to use girders trussed precisely in the manner which these experiments shew to be worse than useless.

The girder was of cast-iron 28 feet long, 10 inches in depth, parallel, and of the same section throughout; a strong frame was cast upon the ends of it, in order that the inclination of the tension rods might be varied, or rather that the ends of them might be raised to different heights above the bottom flange.

The tension rods were of wrought-iron, 1 inch in diameter, one on each side of the girder, attached at the points BB to iron pins 2 inches in diameter, which passed under the bottom flange; at the points AA they were connected by means of plates clipping the ends of the girder, and tightened up by nuts and screws.

A weight of four tons was placed upon the centre of the girder, and the deflexion (2 inches and 1-8th) carefully taken. The tension rods were then put on and applied in various places, and the weight required to produce the same deflexion is given in the following table: the distance of bearings was in all cases 27 feet.

No. of Experiment.	Distance of points AA above the bottom of girder.	Distance of points BB on centre of pins below the bottom of girder.	Weight required to produce the same deflexion of 2⅛ inches.
	Inches.	Inches.	Tons. Cwt.
1	30	1	3 19
2	24	1	4 0
3	18	1	4 1
4	10	1	4 11
5	24	6¼	4 8
6	10	6¼	6 1
7	5	6¼	5 12

After the above experiments had been made, the tension rods were removed, and the deflexion with four tons was found to be the same as at the commencement.

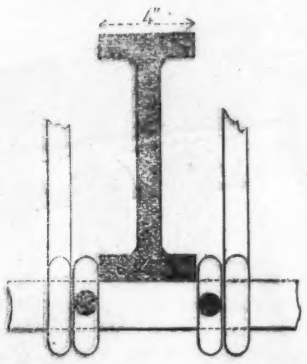
Our readers will observe that, strange as the fact may appear, when one end of each tension rod was 30 inches above the bottom of the girder and the other end one inch below the bottom, the same deflexion was produced by one cwt. less than when there were *no rods*.

When the distance of the points AA above the bottom of the girder was lessened to 10 inches, and the distance of the points of suspension (BB) *below* the bottom of the girder was increased to 6¼ inches, the girder was strengthened 50 per cent.

In some girders recently put up, the points of suspension are actually *above* the bottom flange, and serve with other arrangements to weaken the girders, at considerable cost, instead of strengthening them; while they give a false assurance of strength, which, under some circumstances, may lead to very serious results.

BLIND BUILDERS.—The following tenders for two cottages, to be built in Southmolton, Devon, says a correspondent, are worthy of notice:—

Cock	£170
Henry Baker	129
Smyth (accepted)	90



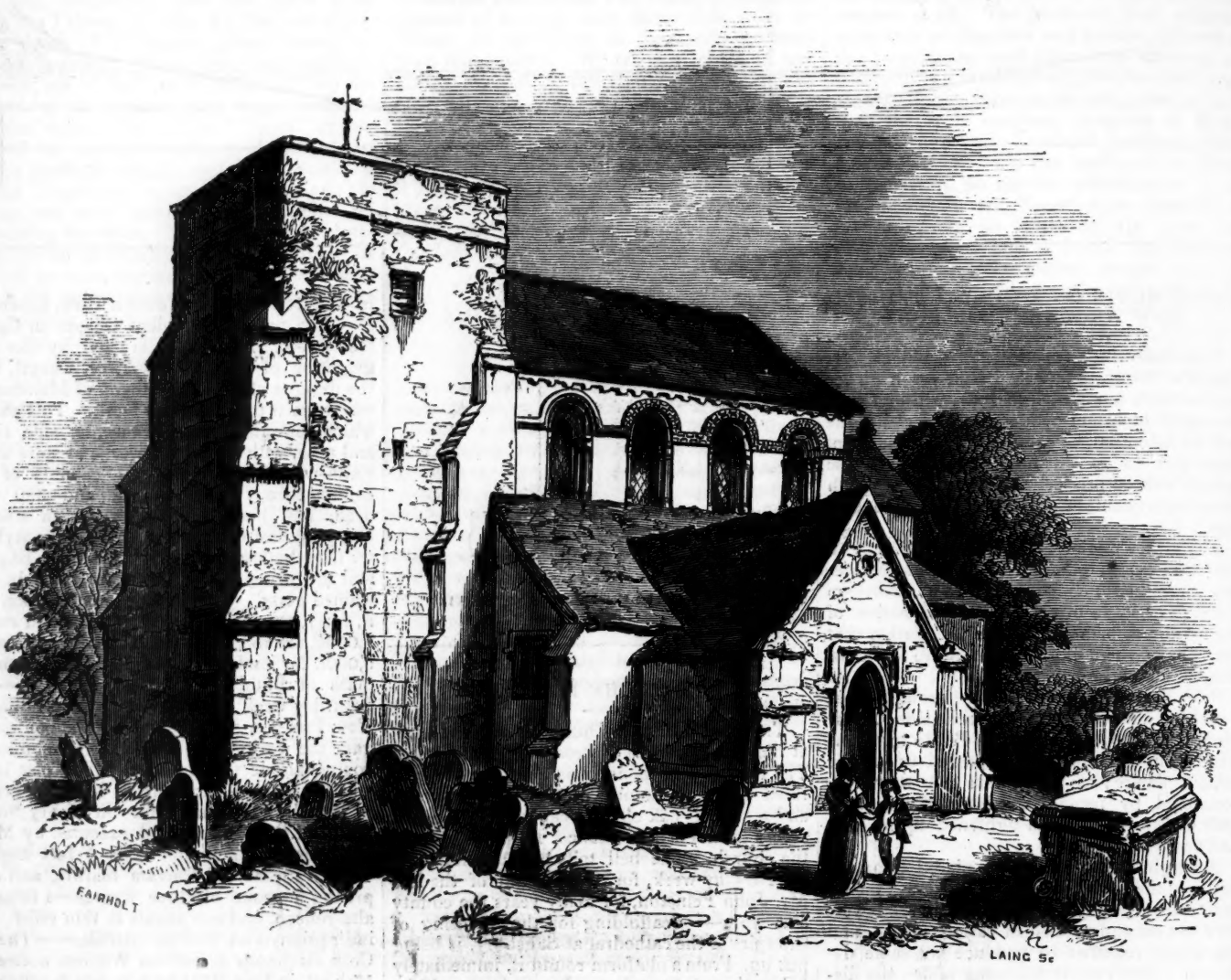
SECTION THROUGH C—D ENLARGED.

NOTES IN THE PROVINCES.

THE New Catholic Church of St. Osmund, at Salisbury, is fast approaching completion. The roof of the chancel has been highly decorated and emblazoned in colours and gold; and a carved oak altar-screen is being thrown across to divide the chancel from the body of the church. The bell tolled for the first time on Tuesday week, for the funeral of the late Mr. John Peinston, for many years the county surveyor.——Scaffolding for the pointing of the spire of the cathedral at Salisbury, is being put up. From a platform round it, immediately below the weather door, the workmen will be lowered as the work may require.——The Chapel of Plush, in the parish of Buckland Newton, Dorset, has been rebuilt, and will shortly be consecrated.——There is a suspension of divine service at Honiton New Church, owing to the unsafe state of the roof.——The first stone of that one of the two Corn Exchanges now being built at Worcester, which is to occupy the old site, was laid on Wednesday week. Some time, according to the local journal, has been occupied in perfecting the foundations: in the first place, by erecting a wall around the whole area of the building, at a distance of about a foot and a half outside the foundation walls, the space between the two walls forming a dry air chamber, for the obviation of the damp which is often arising in the walls of large rooms; and in the second by the construction of recesses, that hot air may be introduced into the rooms when required, and the ventilation be kept uniform and perfect.——A site near Abergavenny has been purchased for the erection of the new Lunatic Asylum for Herefordshire and adjoining districts. At the sessions recently it was stated, that Mr. Fulljames, the architect, had prepared a rough estimate for the erection of the building for 200 patients, at the sum of 21,200*l.*, and afterwards another for 212 patients at 24,300*l.* This being a great excess upon the former estimate, the committee referred the matter to the commissioners in London. Their consulting architect suggested several improvements, and though there was a portion of the money to be expended in ornament, according to Mr. Fulljames' plan, thought that there were more projections and more staircases than necessary, and that the whole might be completed at 100*l.* per patient. Mr. Fulljames was accordingly requested to correct his plan in conformity with the suggestion of the Commissioners of Lunacy.——On Tuesday week, the new church at Hixon, near Stafford, erected at the expense of Earl Talbot, was consecrated. A parsonage house adjacent has also been erected.—— It was recently stated that there are 1,000 untenanted houses in the township of Toxteth Park, Liverpool. ——The new Independent Chapel in Cavendish-street, Manchester, erected by the congregation of the Mosley-street Chapel, from the designs of Mr. E. Walters, of Manchester, was opened on Thursday week. This chapel, which comprises nave, transepts, side aisles, and apse, with a lofty tower and spire at the south-west corner, and is capable of accommodating 1,500 adults, and 380 children, has been erected in fifteen months, at a total cost of nearly 11,000*l.* The style, as we have before noticed, is the early English, and the principal windows are filled in with stained glass. The schools in connection with it, for 1,000 children, at an estimated cost of 5,000*l.*, are about to be commenced. Including 6,000*l.* for land, the total expenditure on this mass of building will be 22,000*l.*—— On Saturday week the stonework of Bridlington New Pier was finished, when the contractors gave the workmen a bountiful refreshment, to commemorate the occasion. The pier is 500 yards long.——A monument has been erected in Berechurch Church, for Sir Henry Smyth, Bart., M.P., designed and executed by Mr. J. Edwards, of London. It is 9 feet high by 4 feet 6 inches, of Carrara marble, and comprising a group of three figures—a female in alto-relievo, and two angels in thin relief. The inscription is on Sicilian marble.——The new Corn Exchange at Saffron Walden, noticed on 17th ult. in THE BUILDER, is now in active progress. The south wall appears at nearly its full height, and the east and north sides are in a very forward state, so that the building will at least be fit for occupation on 29th September. It is to be in the Italian style of architecture, surmounted by a bold clock-tower, supported by Doric columns, and will consist of sixteen corn merchants' offices, a committee-room in the angle, and public reading-room in the north-east end; these enclosing an 11 ft. covered ambulatory round the area, and leaving a clear opening in the centre of 25 ft. by 35 ft. The intended new post-office is in a still more forward state as to the external walls, which are continuous from the south front of the Exchange, and corresponding in style of architecture, from a design by Mr. William Beck, of London, architect. The post-office itself will be under a colonnade, supported by two Doric columns, with a passage, and pilasters, surmounted by a public room, with a waiting room, &c., at the rear. On these buildings Mr. Erswell has about eighty men at work. The entire cost of the Exchange will be about 2,500*l.*, independently of the post-office and public room, which will cost about 1,200*l.* A new savings' bank office is about to be erected contiguous to the above, in a similar style of architecture, and to cost about 900*l.*

EXEMPTION FROM BRICK DUTY.—In the Court of Queen's Bench, in the sittings at Nisi Prius, after Trinity Term, at Westminster, before the Lord Chief Baron and a special jury, in the case of the Attorney-General *v.* Walker, the question was raised, whether in the erection of any bridge, for the purpose of passing over newly-made drains, parapet-walls, and other small erections for the public safety, or for the support of any such bridge, were to be regarded as drain-bricks, which, under the 2nd and 3rd Vic., c. 24, an Act for draining certain wet lands and marshes in Lincolnshire, are exempt from duty. The jury gave a verdict for the defendant.

STEYNING CHURCH, SUSSEX.



STEYNING CHURCH, SUSSEX.

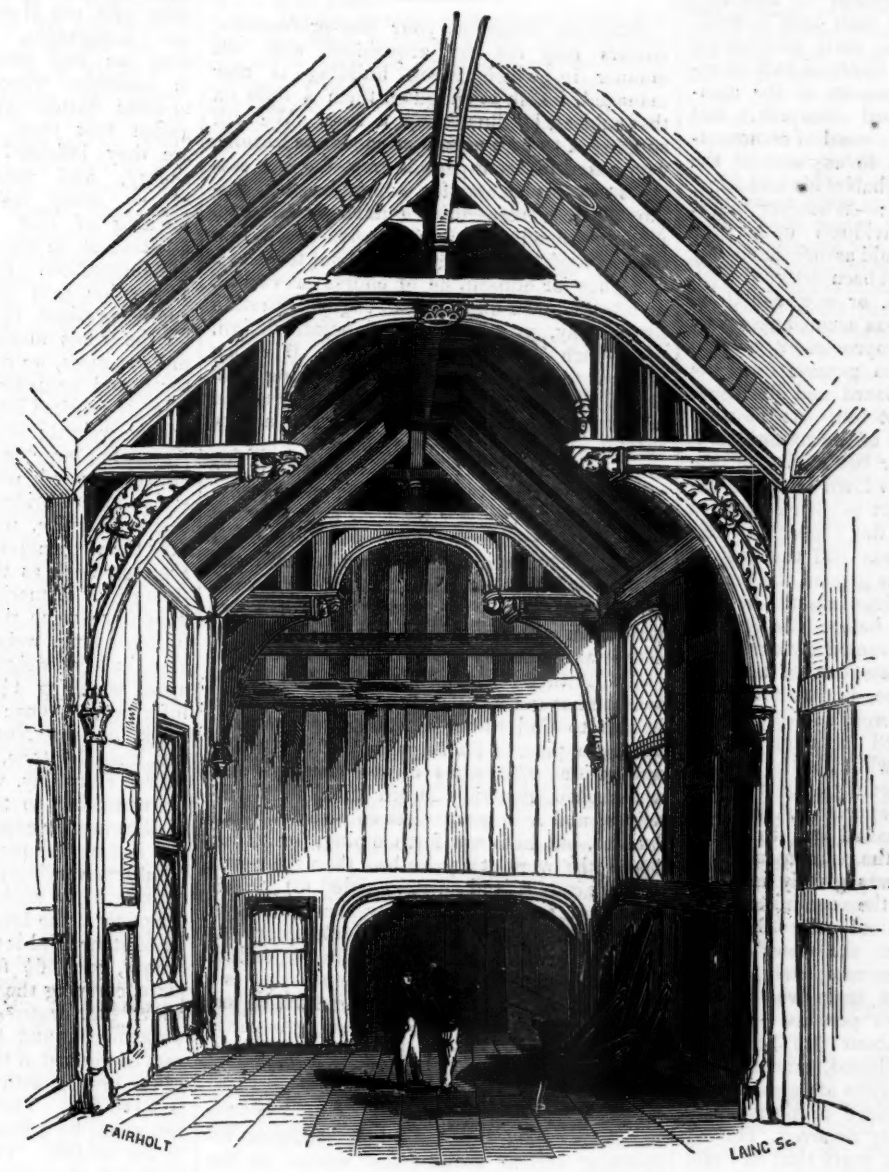
STEYNING is one of a series of churches, situated on the Sussex coast, second to none in England for interest. The very early church of Sompting is but two miles from it, which Rickman was inclined to consider bore traces of early Saxon architecture. Broadwater, with its beautiful chancel, is but a few miles farther; while Old and New Shoreham lie close to the sea, and within a few minutes' ride, by railway, from Brighton. There can scarcely be a more interesting district for the ecclesiologist, while the lover of nature will be repaid by the beauty of the scenery around him.

Steyning lies at the foot of the elevated downs, which, rising a little inland, inclose a valley singularly fertile and beautiful, surrounded by hills on all sides, and embracing an area of great extent, dotted with churches and villages, many of a primitive character, and which are of most ancient foundation. The beauty and fertility of this spot attracted even the Romans: and at Bignor, on the one side of this amphitheatre, some of the finest pavements in England have been discovered and are still preserved.

Steyning, in the time of the Saxons, appears to have been a place of considerable note; and here St. Eadmon and Ethelwulf, the father of Alfred the Great, was buried, and their relics religiously preserved long afterwards. King Edward the Confessor gave lands to the Monastery of Fescamp, in Normandy, which includes this place; and William the Conquerer founded an Alien Priory of Benedictine Monks here, which, being granted to the Sion Monastery by Edward IV., continued to be part of its possessions until the dissolution. The church is dedicated to St. Andrew, and consists of the nave only of a larger cruciform structure, which must originally have been one of the noblest and most elaborately decorated in the kingdom, but of which we can only form a faint notion by the fragment which now remains.

The interior is magnificently enriched. The nave exhibits on each side four ornamented arches, each surmounted by a round-headed window, and they have been copied in the repairs of Arundel Castle. For variety of detail, and richness of effect, they equal any specimens extant of Norman work. Our smaller cut exhibits some few details of this portion of the building. Fig. 1 is a capital on the north side, shewing the details of the circular arches which it supports. The arrangement of the chevron upon the arch to the right of the spectator is peculiarly rich in its effect; the points of each series of zig-zag mouldings are arranged like a fan, with their angles forward. Fig. 2 is an ornament adopted for the edge of another arch. Fig. 3 is a double arch springing from a grotesque head, and is withinside the southern arches, immediately beneath the roof of the side aisles, which are very low. A pillar in the wall on this side exhibits some curious sculpture in a sunk tablet beneath the capital, but it is partly hidden by the beams and woodwork of the gallery; figures in Norman costume appear to be gathering grapes, or are engaged in the woods. At the east end of the church, where the transept is intersected, are clusters of columns and arches for supporting a central tower; a lofty Norman arch leads into the

ANCIENT HALL, SAFFRON WALDEN, ESSEX.



chancel. The present tower on the west is of more modern date; it is a heavy piece of building, of flint and rubble-stone, laid checquer-wise, with angular buttresses. The porch conceals a door slightly ornamented, and coeval with the chancel. The row of windows above the chancel arches are the most striking external features in the church; they have each a double recessed arch, supported by pillars on each side, and are connected by a string course, decorated by fillet-mouldings, or entirely plain. Above is a corbel table, with grotesque heads, &c.

ANCIENT HALL, SAFFRON WALDEN, ESSEX.

The curious relic depicted in our engraving was so completely hidden by the sub-division of walls and ceilings within it, to adapt it to the necessities of a dwelling-house, that, until the demolition of the buildings in the spring of the present year, all that could be seen were the carved heads of the ends of the hammer-beams. These heads were beautifully and spiritedly carved, and, indeed, the ornamentation of the entire hall was well and boldly cut. It was of small dimensions, the side pillars seen in our cut being in the centre of the hall, and was cleared of modern floorings, &c. before it was demolished, in order that its construction might be perfectly visible. The buildings with which it was connected were old, but no record of the history or occupation of this place is known, except that about two centuries ago it was an inn, the sign being *The Iron Crown*. The Hall appears to be of the time of Henry VII., judging from its detail; it may have been the hall of some wealthy tradesman (Sir John Crosby, in London, and John Halle, in Salisbury, have each left specimens of their in-door splendour), for Walden had many rich traders in the olden time; or it may have been the spoil of some monastic edifice in the neighbourhood which had fallen in the days of Henry VIII.

The name of Walden is said to be derived from the Saxon words *weald* and *den*, signifying a woody hill. At a later period the place was called Waldenburgh, and in the reign of Stephen, when Geoffry de Mandeville, Earl of Essex (who built the castle, of which a fragment still remains, and who was the grandson of one of the most distinguished followers of William the Conqueror), procured from the Empress Matilda, the grant of a market previously held at Newport, the town took the appellation of Cheping-walden. The present designation owes its origin to the culture of saffron in the neighbourhood, which is supposed to have been introduced by Sir Thomas Smith early in the sixteenth century, but has long since been discontinued; the device of the seal of the corporation is a rebus on the name, being *three saffron flowers walled in*, about as bad a heraldic pun as any on record.

The ancient hall and the buildings with which it was connected have been pulled down, in order to construct a new market-place. The carved heads from the hammer-beams (six in all) have been preserved by the Hon. R. C. Neville, in his museum, at Audley End.

THE NEW BUILDINGS ACT.

THE MASTER CARPENTERS' SOCIETY.

The anniversary dinner of the Master Carpenters' Society was held on Wednesday in last week, at Blackwall; Mr. H. Biers, president, in the chair. Mr. Stephens, in proposing the health of the chairman, took occasion to say, as it was probably the last time that their chairman would occupy the president's chair at their anniversary, how much was owing to him for exertions during seven years in opposing or promoting, as they might be deemed injurious or useful, the many measures brought before Parliament in the shape of buildings' bills, and which question was even now left in a most unsatisfactory and discreditable state. He said they all knew that a committee was selected by Lord Morpeth in October last, but up to this period (the end of June) they were, as regarded the Metropolitan Buildings Bill, precisely in the same state that they were in this time last year. As their chairman was upon that committee, and as he had appeared there the representative of this society, he (Mr. Stevens) thought they might look to him on the present occasion for some statement on the subject.

The president, in acknowledgment, stated, that as this was the last time he should have the honour to fill the president's chair at their anniversary, he would very shortly reply to some of the observations which have been made, especially upon the very important subject of the Buildings Bill: he wished he could foretell a future and improved edition of it. In October last he was sent by the society as its

representative, to work upon a committee appointed by Lord Morpeth to examine and to report upon the emendations necessary in the present absurd and obnoxious Metropolitan Buildings Bill. From October to February last the committee met at least once a week, and gave to the subject the most persevering attention for six or seven hours at each meeting. In February last a report of the committee was sent to Lord Morpeth, but from that time to this not a word of communication had been forwarded to any one of the committee either by or on behalf of his lordship.* The Chairman continued:—Whatever might be the interests of individuals under the present regulations, he would assure the society that the committee had not been deterred from proposing any amendment, or any regulation, or any improvement that was deemed necessary or desirable for public improvement, or that might relieve the public in general from the operation of the many absurd and obnoxious regulations in the present bill. At the commencement of the labours of the committee, it was agreed that until after the report of the committee had been sent to Lord Morpeth, the committee was not to report to their respective constituencies, and he (the Chairman) had since understood that it was still the wish of Lord Morpeth that for the present the recommendations of the committee should be prevented from being laid before the public. This being so, he was prevented laying before the society a detailed statement of the proceedings of the committee, but without committing any thing like a breach of confidence, he thought he was justified in saying that the whole, or very nearly the whole, of the amendments proposed by the society of master carpenters had met with the approval of, and were supported and recommended by, the committee. In establishing the recommendations and improvements, he was greatly indebted to Mr. Piper, also on the committee, the able honorary secretary of the Builders' Society, whose views met the views of this society so exactly and so completely, that it would almost appear that there was but one society represented by two persons. In conclusion, it will appear that about 79 of the clauses in the present bill are altered, amended, or expunged; that the schedules are also altered most materially, and a large proportion are recommended to be entirely removed. Having stated this much, he was sorry that he could not give the information as to when the recommendation of the committee would either be adopted or taken into consideration; at all events, he thought that Parliament would not be troubled this session with any improved bill; but still the society ought not to lose sight of, and ought not passively to put up with, the buildings regulations, but from time to time energetically and unceasingly impress upon the members of the Legislature, that the present bill is obnoxious, unjust, and ambiguous, and ought to be displaced by a much more simple and reasonable enactment.

SOME ARCHITECTS' PRACTICES.

SIR,—Before you can induce any uniformity or consistency in the charges of architects to their clients, you must persuade them all to forego their "commission at the other end." At present very many in the profession always expect, and very often receive, either a direct per centage, or an indirect "consideration," from the parties whom they recommend, or who work under them, and, although I allow there are many honourable exceptions, these are more rare than you perhaps imagine. Some, indeed, there are who are far too respectable to touch gold, or a cheque, even if offered—but then they do not expect to be charged for any work done at their own houses, or, if charged, never think of paying the bill.

I do not make this charge at random, but from certain knowledge and costly experience. I hand my card as a guarantee of good faith, but I cannot afford to have my name published in connection with the subject.

Of course the practice is baneful to all parties concerned, and not least to the upright and fair-dealing architect.

A TRADESMAN.

SIR,—As some of your non-professional readers may not be acquainted with the manner in which cheap building is now managed, I wish to enlighten them a little on that subject, by illustrating a case. We will suppose A to be a person of moderate fortune, who has at different periods erected a few cottages on his estate, for which he has employed B, a respectable builder in his own neighbourhood, who has hitherto given him entire satisfaction, but being about to erect a residence for himself, he of course calls on an architect C, who finding it an eligible situation for display, makes a very elaborate design, with which A is very much pleased. B is then applied to for an estimate, and being well acquainted with the locality and the expense of getting materials to the site, makes a very careful calculation, allowing himself a fair remuneration: but his estimate far exceeding the sum stated by the architect, A, at C's suggestion, advertises for tenders, and a lot of half-inch contractors, men without either money or character to lose, come forward, and the result is that a tender, 25 to 50 per cent. lower than B's is accepted; the works are proceeded with immediately; a few extras of course are found by the builder, for which he is paid. A then furnishes his house, and by the time he has got completely located therein, he begins to find rather alarming symptoms of going to pieces; floors gape, ceilings crack, and various other signs of slippery work and unseasoned materials begin to show themselves, and A in great distress sends for the builder, but he is not forthcoming, for having taken the work at a price less than the actual cost, he cannot (and never intended to) pay his creditors, and is undergoing the process of whitewashing in the court of Bankruptcy. A, being an honourable man, has then to endure the punishment of living in a house that is a continual eye-sore to him, and which he has the additional mortification of feeling is partly erected at the expense of the timber merchant, stone merchant, and brickmaker.

JACK-PLANE.

*** We have received a long statement respecting certain tenders for repairs at the Russell Institution, but cannot insert it without inquiry.

RAILWAY JOTTINGS.

THE calls due in July amount to nearly 4,000,000*l.*, or about 1,500,000*l.* more than those of June, and greater than any this year, except in January, which was nearly 5,000,000*l.* Compared with July, 1847, there is a decrease of nearly 1,500,000*l.* The total amount of calls to end of July is 22,437,931*l.*, against 27,394,220*l.* in 1847, being a decrease of 4,956,299*l.*——A railway velocipede, for official visits of inspection, has been tried on the Lincoln and Nottingham line. It is so light that four persons might lift it out of the way on the approach of a train. To put it in motion, two men, who stand upon it, turn a wheel round which a strap passes; the strap also passing round a small wheel in the middle of one of the axles. Without any great expenditure of strength, a speed of 20 miles an hour can be kept up. This, however, is by no means a new machine, although it is so called. We have seen it at work on one of the Scottish lines some years since, under the direction of Mr. Errington, C.E.——"Mr. A. C. Tarry," says the *Gateshead Observer*, "writing from Lucca to his friend in England, on the 31st ultimo, says:—'it gives me much pleasure to inform you that, during the war here, we have been much indebted to the manufacturers of England for locomotive engines, the transit of so many soldiers requiring their constant use night and day, and the Yankee engines we have here requiring continued repairs. Since I came here, an engine, made by Messrs. Sharpe, Brothers, of Manchester, has run the unprecedented number of 81,000 miles, without requiring a sixpence of expense in that way, with the exception of furnace bars, which were speedily rendered useless, from the softness of the material used in their construction.' Our locomotive-builders are cleverer fellows than our shipbuilders, if your Hudsons and your Bentincks are to be believed. Notwithstanding the high wages which our Stephensons and our Hawthorns, our Sharpes and our Longridges, pay to their workmen, they can find customers for their engines in countries where wages are low. Is it to some statute akin to the Act of Navigation that their superiority is owing? or are they indebted to their own skill, and energy, and enterprise?"——The falling of so many railway bridges, and the burning of that at Newport, involves a question as to which is really the best mode of construction. It cannot be claimed for us, as a nation, says the *Mining Journal*, that our engineers adopt, in every case, plans founded on the truest mechanical bases; but, in numerous cases, we have seen enormous structures, and immense iron girder bridges, absolutely crushed into ruins by their own unwieldy weight; while lighter structures, but possessing large mechanical power, have been entirely passed over. Among the many descriptions of bridges which we have had occasion to notice, we know of few which combine the elements of safety with lightness and economy such as that under Ryder's patent, though of American origin. The model, which we some time since inspected, 4 feet 6 inches long, weighing 12lbs., has supported shot, in bags, weighing 1,500lbs.; one, 40 feet span, weighing 4¼ tons, has borne, we are informed, 50 tons; and a bridge, with a double track, on the New York and Harlem line, weighing 13 tons, has heavy trains passing over it every day, without sensible oscillation or vibration; to test the methods employed of allowing for expansion and contraction, the two last named ones have been exposed to temperatures varying from 110 degrees to several degrees below zero.——The following is a description of the bridge over the Tweed: it is to be of stone, and is to consist of 28 semicircular arches, each 61½ feet span, resting on lofty piers, carrying the level of the railway 103 feet above high-water mark, 126 feet above low-water mark, and 135 feet above the deepest part of the bed of the river. The whole length of the bridge, with abutments and wing-walls, is 2,140 feet. The 28 arches are divided into two series by a broad pier, 28 feet in thickness in the middle. The piers of the arches are 8½ feet in thickness at the springing, increasing by steps towards the bottom. The work will not be completed for 16 or 18 months, but a temporary bridge will shortly be ready for traffic.——The viaduct over the valley of Dunglass, between Dunbar and Berwick, not far from the once celebrated Pease-bridge, crosses the valley and banks by six semicircular arches, each 60 feet span, and then the deep ravine by a single arch, 135 feet span, and rising 105 feet above the bed of the stream.——The Ballochmyle viaduct, across the water of Ayr, on the Cumnock extension of the Ayrshire railway, is similar to that of Dunglass in crossing the valley on three semicircular arches, each 50 feet span on each side, but crosses the deep ravine in the middle by a single semicircular arch, 180 feet span, and rising 150 feet above the bed of the stream. The adjacent rocks furnished vast blocks of stone, greatly facilitating the construction. The arch stones are 5 feet 3 inches deep at the springing, and 4 feet 9 inches at the crown. ——On the Blackburn and Accrington portion of the East Lancashire Line, just opened, there are several viaducts. In passing from Blackburn a tunnel and cutting are first met with, and the line soon reaches its apex on a gradient of 1 in 140 at Rishton Moor, near which is the first viaduct, crossing a canal, and formed of heavy timber on four stone piers, "the woodwork," it is said, "being knitted together in a peculiar manner, securing very great power." At Rishton, also, the reservoir is crossed by a viaduct 240 feet long and 30 feet wide, constructed of timber "strongly knitted together by iron plates and bolts." The roadway over the reservoir rests on nineteen bearings, the crossheads of which are at a height of 45 feet from the iron points of the beams, of which there are six to each bearing. The piles are 10 feet above the water, 20 feet in it, and 15 in the earth. The line again reaches and crosses the canal in Church parish, where a viaduct

* Some time since, we forwarded to Lord Morpeth a request to be permitted to publish the report; but his lordship considered it was not desirable that the same should be made public at present.—ED.

occurs which is part of a continuous series of nearly half a mile long. This structure contains thirty-one spaces of 25 feet wide each, the extreme height of the line above the brook being 72 feet. This viaduct is of timber, set upon piers of masonry. At the entrance to Accrington a line is sent off on the left to Burnley, over a stone and brick viaduct of twenty-two arches of 40 feet span; the highest point being towards its centre, where the distance between the water surface and the roadway is about 60 feet. The first arch of this viaduct is of hewn stone. The contractors for these and other works are Messrs. Smith and Pearce.——It may not be generally known, says *Herapath*, that large quantities of gunpowder are frequently and safely conveyed by railway. As much as 11 tons in one day, and in a few months above 100 tons have been carried on the London and North-Western line to Liverpool, Manchester, Leeds, and other places. The waggons are made expressly for the purpose. There are eight of these on the London and North-Western, constructed in accordance with the patent of Mr. Henson. The body of the waggon is formed with sheet iron on the outside: the interior is lined with 2-inch plank, between which and the iron outside a thickness of felt is carefully placed. These are screwed to either from the outside, so that there is nothing but wood inside, except on the floor, which is covered with sheet lead. The door fits close with a double rabbit, so that it is almost air-tight, and it is therefore impossible for any fire to get to the powder. The axles are cased with wood. The comparative absence of the usual noise and vibration in the movement of these powder-wsggons is very remarkable.

ELECTRO-TELEGRAPHIC.

The use of the telegraph enters into the everyday business of the press in America. Journals distant a day's journey from Congress have its speeches and proceedings in print while the speaker is in possession of the floor. This wonderful power, however, has been greatly abused; and just indignation at this want of principle in our transatlantic brethren has been repeatedly excited. With them the treachery of the telegraph appears to be "pretty considerable." It has almost universally happened of late, on an arrival from Europe, that the wires have been broken at some point along the line, and thus all correspondence has been cut off. When managed with integrity, the telegraphs radiating from New York furnish the papers with intelligence of ship news and other matters, at the rate of fifty dollars a week. The approach of the steamer *Cambria* has been announced in Boston, by means of the marine telegraph, while the vessel was yet nearly forty miles from the harbour. This news did not stop at Boston, but was, within five minutes, also announced in New York. At New York, the progress of the *Cambria* was also known as she entered the harbour, and at the moment she passed into the dock. By this wonderful medium of intelligence, the arrival of the steamer was reported in Springfield, Hartford, New Haven, New York, Philadelphia, Baltimore, and Washington, before the vessel reached the wharf in Boston; and the principal items of news were published in most of those places at the same time, and within one hour from the time of their publication in Boston.

Architectural Prizes: University College, London.—The following is a list of the students who have received prizes in architecture. As a *Fine Art*, 2nd year, 1st prize: John Norton, of London; 2nd prize: John G. Hall, of Hampstead; as a *Science*, 1st prize: Charles Poland, of London; 2nd prize: John G. Hall. *Fine Arts*, 1st year, 1st prize: Edward W. Tarn; 2nd prize: Thos. Hill, of London. *Science*, 1st year, 1st prize: Thos. Hill; 2nd prize: Edward W. Tarn.

Engineering Prizes: University College.—1st year, prize and 1st certificate: Gerard B. Smith, of London. 2nd year, prize and 1st certificate: Samuel S. Blackmore, of London. *Surveying.*—Prize and 1st certificate: John Young, of Chatham. *Mechanical Principles of Engineering.*—Prize and 1st certificate: Alfred Warren, of Kentish Town.

METROPOLITAN COMMISSION OF SEWERS.

A general court was held on Thursday morning in last week; the Right Hon. Lord Morpeth, M.P., in the chair.

Mr. Hertslet, by order of the court, produced a list of the officers employed by the old, with those retained by the present commission, with the salaries attached.—The Hon. F. Byng said that statements had been put forth that the salaries paid by the present commission considerably exceeded those paid by the former commissions. Now, what was the fact? Why, with a staff of officers far more efficient than what they formerly possessed, a saving had been effected on the present quarter of no less a sum than 1,351*l.* 13s. 4d.; and taking that sum for each quarter, the annual saving on this head alone would amount to 5,406*l.*—Lord Morpeth said this was a very important statement, and ought to be generally known.

Mr. Hertslet then read the following reports from the Ordnance Committee:—

"We have to report that the continuation of the survey of London by the Ordnance, as sanctioned by the court, is now in progress, and we have been assured that no time will be lost in proceeding rapidly, and at the same time effectively, with the work. Already a considerable force is stated to be on the ground.

The district previously surveyed by the Ordnance, and comprised within an area extending from Westminster-bridge, by the Birdcage-walk, Constitution-hill, Knightsbridge, Brompton-road, Milman's-row, and thence by the river to Westminster-bridge, is represented to be finished, and we expect the sheets on which this portion of the metropolitan survey is plotted, to be delivered to the commissioners from the Ordnance office within a very short time.

As soon as these sheets are received, the results of the subterranean survey of the same district, comprising the lines of sewers, with levels of numerous points on the inverts of the main and principal branch sewers, can be immediately inserted on them, this portion of the subterranean survey being nearly completed, so that the commissioners will then be in possession of a general view of the drainage of this portion of the metropolis.

At the same time they have correct information respecting the transverse and longitudinal forms of the sewers, the present condition of the materials with which they are constructed, and the state of sewers, as regards sediment and general contents, at the time when each sewer was examined."

"It appearing, upon examination, that the radius of eight miles from St. Paul's extends to districts to which it is not desirable the survey of London should be rapidly carried, inasmuch as such districts are unimportant, while, at the same time, other districts on the confines of the area thus determined, such as Brentford, Kew, Richmond, and others, are important, and would be inconveniently divided from the general block plan as at present arranged, we would request authority so to apportion the survey, that the unimportant districts should be omitted, while those on the confines of the area of eight miles from St. Paul's, and important for the consideration of the general drainage area, should be substituted, it being always understood that neither the limits of the commission, nor the total amount of area to be surveyed, and for which the estimates have been framed, should be exceeded. We have reason to consider that by an adjustment of this kind a less area will, on the contrary, be found desirable.

It being extremely important that the subterranean survey, comprising the investigations noticed in our previous report, should always be so far advanced that when the plotted sheets of the block plan are received from the Ordnance Map Office, the directions, levels, and other information connected with the sewers may be immediately inserted, so that general views on the subject of drainage may be entertained at as early a period as possible; we would also request authority so to proceed with the subterranean survey, by increase of force, including draughstmen, that this desirable object may be obtained."

Mr. Chadwick rose to move that these reports be received and adopted; but in consequence of the low tone in which he spoke, with the echo of the room, and the incessant noise of masonry-work on the outside, but very few of his observations were audible. He was understood to say that by the reports presented it would be seen that a necessity existed for proceeding with two surveys simultaneously, viz., the survey of the surface of the ground and the survey beneath the ground, or what might be termed the subterranean survey. Until the present commissioners took office, there was no knowledge, or at any rate but a very imperfect one, of ancient sewers; and even recently-constructed sewers appeared to be nearly useless, as they had been constructed without any relation to levels or other important considerations. When the Ordnance maps were presented, they would be made available; but they were unable to commence new sewers until they got complete information; and with this view a set of questions had been submitted to the ratepayers to know whether their houses were drained or not, and on the general state of house-drainage. When they had obtained the information sought to be derived from these sources, it would form the base for future improvement. He believed that about 1,000 acres of the subterranean survey were now completed. and the committee hoped that the court would sanction such additional force as would enable them to keep pace with the Ordnance, and that the whole work might be completed with speed and efficiency.

Lord Ebrington seconded the motion.

Mr. Bullar was anxious to know something of the extra expense of these proceedings.

Mr. Leslie considered that the whole matter should be referred back to the General Purposes Committee to report upon it, as the plotting could not be commenced for a short time. He would ask Sir Henry de la Beche whether that short time did not mean a fortnight or three weeks? Another question he wished to ask was, whether the sum of 19,000*l.* required for the survey included the military pay of the officers and men, engaged in the work?

Sir Henry de la Beche said, with reference to the first question, he believed that in a fortnight or three weeks the plotted plans would be delivered to them, and when these plans arrived, they would then be able to lay down their own for subterranean purposes. As to the increase of expense, they asked for but two more levellers, with five or six men, and that the amount should be extremely limited, they proposed to take but 500*l.* on account. It would be perceived that it was very desirable to plot without delay, and to proceed at once with the work. With respect to the entire expense of the work, it appeared that a great error had arisen, and being anxious to obtain correct information, he had inquired at the Ordnance-office whether the amount of 19,000*l.* would include the military pay of the officers and men engaged in the survey? He was happy to state that this amount *included the whole of those charges*, and that any additional expense which had been stated was quite erroneous. He thought the sooner the public mind was disabused of this impression the better.

After a few words from Lord Ebrington, Mr. Bullar, Mr. Broderip, and the Rev. W. Stone—Lord Morpeth suggested that the case might be met by the adoption of the following resolution:—"That the reports now read be referred to the General Purposes Committee, and that the Survey Committee be authorised to order the expenditure of the sums immediately required for the purposes of the subterranean survey."—Mr. Chadwick objected to any reference, but other members having expressed their opinion, the amendment of Lord Morpeth was put, and carried by a large majority.

Mr. Hutton then proposed the following resolution:—"That the Ordnance Survey Committee be authorised to determine the boundary of the survey with reference to the line of eligible drainage area, and in accordance with the legal opinion which has been taken for their guidance; and that they report to the next court."—Carried.

It was ordered that a rate of 9d. in the pound be prepared for the Poplar and Blackwall district.

Various proposed works were ordered to be carried into effect, and the court was then adjourned to the 25th of July.

Correspondence.

COMPETITION AGAIN — NORMAL COLLEGE FOR WALES.

Sir,—Strange conditions as you know creep into the "Instructions to Architects," issued by the local committees of our day. Perhaps one of the strangest, and certainly one displaying very ingenious economy, appears in those forwarded to applicants "by the Building Committee of the Normal College for Wales, to be erected at Swansea." You will perceive that the said clause provides the committee with a contractor, without any further fuss or expense: but what will the architects' answer be?

The following is a copy of the condition: let them judge. The two premiums offered are 25 guineas and 15 guineas, and no pledge is given to employ the happy first-prize-holder in the erection of the building.

"The sum which the committee anticipates being able to devote to the buildings will be from 3,000*l.* to 3,500*l.*, and it will be required of all parties competing, that they shall be prepared with approved contractors, who shall undertake to carry out their plans for a sum not exceeding the amount stated in the letter to the hon. secretary, which must accompany the plans. * * * *

"The buildings must be so arranged as to enable the committee to adopt either the warm-water, hot-air, or such other plan as may be agreed upon as the most approved for heating the principal apartments, the cost of which must be included in the estimate for the whole."

This is sufficiently *rich* in itself—comment would mar its humour.

An Architect of the Cymru.

Improvements at the Bank of England.—A number of workmen are now employed in the contemplated improvements at the Bank. It is intended to raise the front about six feet with ornamental stone-work, in order to render the structure more in harmony with the adjoining buildings. It is said that the alterations will be made in such a manner as to afford greater protection in case of any disturbances arising in the metropolis. Poor Sir John!

Miscellanea.

PROJECTED WORKS.—Advertisements have been issued for tenders, by 20th July, for the erection of the Durham new County Infirmary; by a time not specified, for the reconstruction of the roof of St. Paul's Church, Bedford; and for relaying roof of same with lead; by 18th, for piling and timber-work and repairs to stations, &c. on Brighton and South Coast Railway; by 17th, for repairing two streets at Wapping; by 12th, for a supply of 1,000 tons of granite lumps for Poplar Union; by 10th, for the boiler and cooking-apparatus for the Kensington new workhouse; by 13th, for 100 iron bedsteads for same; and by 18th, for paving, granite, and gravel, &c., for St. Mary, Newington, Surrey.

DRAINAGE OF CARDIFF.—In our journal of the 3rd of June, a rate-payer of Cardiff asked our opinion as to the efficiency of a mode of drainage determined on for the workhouse of that town. Since then we have received additional information on the subject, and additional pressing for a reply; and though we do not feel bound to answer such inquiries, knowing that we might, without having much fuller information than is usually sent us, commit injustice or compromise ourselves, we will say, that although the pipe is small, there seems reason to believe that the arrangement proposed will be found sufficient for the purpose.

LIVERPOOL ARCHITECTURAL SOCIETY.—The new association took, last week, the first of a series of archæological excursions,—the ancient church of Bebington, on the other side of the river, being the point of rendezvous determined on. The weather was unpropitious, but the ardour of the members brought a respectable, and, for the weather, numerous gathering, at the appointed place. Bebington Church is interesting to the architect and antiquary, from its containing, in spite of modern alteration, specimens of every style of mediæval art, from the Early Norman to the Late Perpendicular. The weather confined the visiters to the investigation of the interior. Sketch books, measuring-lines, and ladders were in requisition, and the company, divided into parties, delineated every portion of the building possessing claim to be recorded. Amongst the professional members present were Messrs. J. A. Picton, A. Holme, C. Reed, George Williams, Horner, Kilpin, Culshaw, Gee, Barry, Brown, and others. At the first meeting of the society in the ensuing session (in the first week of October), it is proposed that the drawings shall be exhibited, and a paper read on the history and antiquities of the church in question.

DILATORY GLEANINGS FROM THE ENGINEERING HARVEST.—In a late sitting at *Nisi Prius—tamen tempori—re* Albano *v.* Duke, an engineer sought to recover the sum of 3,321*l.* odd, on account of services, at the rate of 10*l.* 10s. per diem, in surveying a projected "Oxford, Witney, Cheltenham, and Glocester Independent Railway," with an extension line from the same (all on paper merely) for which services it appears that the defendant, Sir James Duke, a provisional committee-man, was deemed by the plaintiff, Mr. Albano, responsible, as "monarch of all *he* surveyed." An additional sum of 1,300*l.* odd, the amount of a bill, was also libelled on, but "could be a matter of no dispute, for it was a sum admitted by the provisional committee to be due," inasmuch as, "after the failure of the project, and at a meeting of the shareholders, that committee represented that a balance of the deposits, amounting to 6s. 8d. (a very important sum in the eyes of a lawyer, at least) remained, *which would be required to meet the engineer's bill, amounting to* 1,300*l.*" Mr. I. K. Brunel gave evidence that, taking into account the great demand for engineers in 1845, the sum of ten guineas a day was certainly not too much. The expense of surveying, he added, on cross-examination, might average from 80*l.* to 100*l.* per mile. 80*l.* is a low price. 150*l.* is higher than the average, but he has known the cost to exceed 160*l.* Plaintiff and defendant, however, ultimately decided on their own verdict, to be taken on behalf of the plaintiff for 500*l.*, the defendant at the same time stating that he did not consider himself liable for that sum. Verdict accordingly—damages 500*l.*

BEARD'S DAGUERREOTYPE PORTRAITS.—Daguerreotype portraiture is still a mystery and a marvel: the results of the action of light on surfaces chemically prepared are made more and more evident to our senses by the efforts of manipulators; but, so far from bringing us nearer to a clear understanding of the process, serve, in many cases, to contradict our previous views, without supplying new ones. None of the mysteries of religion at which sceptics laugh "because they are contrary to reason"—their reason—are so irreconcilable with our *ignorance*, so apparently impossible, as results which are now every day before us. Just think of this fact, for example, that a ray of light of a violet colour, falling upon a common sewing-needle, will convert it into a magnet! Who can understand it? We know little or nothing about light. The improvements which Mr. Beard has made in the process by which portraits are produced, at his establishments in King William-street, City, and the Polytechnic Institution, result from an entirely different treatment of the plate from what previous knowledge would have suggested. The effect, with which alone we are able to deal, is greatly improved; white and its modifications are more perfectly produced than was formerly the case, and that, too, without lessening the force and depths of the blacks, which was all the difficulty; the colouring, too, is less superficial, more a part of the plate than it was, rendering many of the recent specimens which we have had an opportunity of examining perfectly life-like and beautiful.

THE RATING OF MECHANICS' INSTITUTES.—Mr. Hutt, M.P., says, in a letter of the 23rd ult.,—"The Attorney-General communicated to me this morning that the Bill which he had introduced, by which the buildings of literary and scientific societies would be brought under the tax-gatherer, would be abandoned and withdrawn." It is only due to the Attorney-General to add, that the obnoxious clause, against which the committee of the Gateshead Institute petitioned, formed no part of the original Bill, but was thrust into it in committee.

HOLBORN HILL.—A design is at present under consideration of the Committee for City Improvements, for widening Skinner-street, taking down the houses from Farringdon-street to Shoe-lane, setting back the churchyard, &c., and on the space thus provided, erecting a viaduct over the hollow from Hatton Garden to Sea Coal-lane, with carriage-way, 20 feet high and 24 feet wide, and a flight of steps for foot passengers at the corner of Farringdon and Skinner streets. The demolition of the houses from Field-lane to Victoria-street, now effected, and the destruction of two of the old and ruinous houses between Shoe-lane and Farringdon-street by fire, together with the half untenanted state of the north side of Skinner-street, afford a singularly favourable conjuncture for the accomplishment of some such scheme.

THE MARINE GLUE.—Mr. Jeffrey, the patentee, who is said to have sacrificed his prospect of public support for the last six years to exclusive exertions in order to render his marine glue available to the British navy, appears to have reaped the ordinary reward of Government benefactors, namely, the consciousness of having made himself useful, enhanced by "the most flattering and disinterested testimonials" from influential parties, together with the most ample acknowledgments and hopeful promises from parties still more influential. In place of a remuneration equivalent to the admitted benefit and the permanent saving yielded and to be yielded to the country by the adoption of a glue admitted to be of "great durability," the Admiralty have had the penny wise wisdom to offer the patentee, as their ultimatum, virtually a premium on its adulteration, or a powerful inducement to deprive it of at least 'a leetle' of its "great durability," in the shape of "a price per ton for the quantity used,"—an offer equally munificent as wise, if Government wish to tempt the patentee to remunerate himself by lowering the intrinsic worth of the article and its economical value in the public service, but certainly not otherwise, since, "from its great durability, it would yield but a paltry sum towards anything like a fair compensation for such a public benefit."

THE BUILDERS' BENEVOLENT INSTITUTION.—We are glad to perceive that the list of stewards for the anniversary dinner, which it has now been resolved to hold on the 19th inst., in place of the 18th ult., is still on the increase, more especially by the addition of names whose weight is of greater moment than even their number. Our desires, however, on this point are not very easy to satisfy, and we therefore still exhort every one of our influential metropolitan builders who has not yet found time to add his own name to the list, forthwith to do so. They do not overlook the fact, we hope, that this is in truth the workman's cause no less than the cause of the master—nay, in the latter respect even, it is but the cause of the unfortunate master who has been reduced to the poverty of the workman himself, so that this is peculiarly the workman's cause—a cause which at this moment demands that every iron shall be thrust in the fire, to solder and amend those evils which otherwise threaten the entire disintegration of the social relationship between master and workmen. And that a BUILDERS' charitable institution is, above all, important in the present crisis, we have only to look to the deplorable state of our continental neighbours to be but too well assured. In their struggling, sinking death-grip, what are all straining after for the physical and temporal salvation of the unemployed of every class, but BUILDING—BUILDING—PUBLIC WORKS. So is it in France, where master builders are henceforth to be in the ascendant for behoof of the starving multitude. So is it in Austria: so is it in Prussia. Let our British builders, then, have the noble merit of themselves, in their own especial sphere, taking voluntary and exemplary part in *preventive* measures for the general behoof, while their foreign brethren, already in the midst of ruin, are only now being beseeched and enforced by their respective Governments, to take part in measures desperately *remedial* of ruin already consummated. The Builders' Benevolent Institution is capable of doing an immensity of good, and it only awaits the laying of a strong and sufficient foundation of class influence, and the preparation of abundance of the good strong mortar of *cash* to enable it to rear a firm and goodly building in the eyes of the world, even out of a host of poor decayed and broken bricks.

PAYNE'S PRESERVATIVE PROCESS FOR TIMBER.—Leaving out of sight the question of who really invented and brought to perfection the mode of preserving timber called Payne's process, concerning which we were once called on to speak, it appears to be a patent of considerable value, available with usefulness to a much larger extent than it has been yet applied. The chief object is, by filling the pores of the wood with an indissoluble substance by means of exhaustion and pressure, to preserve it from rot and the attacks of insects. Beyond this, however, the process is said to make the timber uninflammable, and a few days ago some experiments on a large scale were made on the patentee's premises in Westminster, which appeared fully to bear out the statement. Two model-houses were subjected to the action of ignited shavings; one of unprepared timber was destroyed, while the other, formed of timber which had been impregnated, remained little injured.

PASSAGE OF GUARDS ALONG TRAINS IN TRANSIT.—Sir: A constant reader of your valuable journal would feel gratified by your deeming the accompanying plan for a safety railway carriage worthy of notice. Many advantages, I conceive, might be possessed in point of safety by carriages founded upon the principle proposed, and, perhaps, should you favour the suggestion with a corner, more competent persons than the writer would consider it further.—I am, &c., G.S.

*** The plan proposed by our correspondent consists of a division of each carriage, along the middle of the interior, by a train-passage 2 feet wide, into two compartments, with seats diagonally arranged, so as to be somewhat longer than if they met right across the passage, while the angular corners are set apart and inclosed for luggage. The plan is simple, and appears to possess convenience and other advantages too, besides means of safety.

OPENING OF THE ROMAN CATHOLIC CHURCH, ST. GEORGE'S, SOUTHWARK.—This, which is the most important structure raised in the metropolis by the Roman Catholics of the present day, and has been in progress about eight years, was consecrated on Tuesday last. When we saw it, it was filled with a thronging crowd, voices were pealing, censers waving, and examination was out of the question. We must take some other opportunity to go over it. In the chancel, and the two chapels east and west of it, with their enclosing metal work, the high altar, rood-screen, pulpit, and font, Mr. Pugin has lavished his admitted skill, apparently unconfined by thought of expense, and has produced no ordinary effect.

A NEW MINERAL USEFUL IN ARTS.—We learn that Mr. Blake, of Akron, Ohio (U.S.), has discovered a mineral, in the neighbourhood of the latter place, which promises to be of great value. He has visited Washington, and obtained a patent for it. "When first dug up, it is of the consistence of tallow, and gradually hardens in a few days, so as to resemble slate, and finally it becomes as hard as rock. It is of the colour of indigo. It is impervious both to water and fire, and admits of the finest polish. When reduced to powder, and mixed up with linseed-oil, it has the appearance of black paint, and may be spread over wood, canvas, &c. Roofs have been guarded by it against fire; and as it does not absorb the rain, it protects the rafters from decay. It consists of about one-half of silica, one-fourth alumina, with less proportions of magnesia, black oxide of iron, sulphate of iron, lime, and carbon."—*Sheffield Iris.*

DWELLINGS FOR THE POOR.—Lord Willoughby d'Eresby claims attention in the *Times* to the following, among other proposals for the improvement of the condition of the labouring classes by establishing a national or uniform poor-rate. 1, The excise duty to be remitted on bricks and flooring tiles used in repairing cottages and other dwellings rated at less than 8*l.*, or 5*l.* in the country and 8*l.* in towns; 2, also on bricks and flooring tiles used in erecting new cottages and outbuildings rated at less than 8*l.*, provided the height of the rooms is not less than 9 feet clear, and that no underground cellars or apartments are used for habitation.

ANTIQUARIES' PROTEST!—It is very coolly proposed in Prussia that the cathedrals and churches should be rifled of their ancient relics, which have the misfortune to be of gold or silver, for the immediate service of the State. A shrine of gold and silver, at Aix-la-Chapelle, surmounted by a crown, in which repose, it is said, the bones of Charlemagne; the shrine of the three kings, in Cologne Cathedral; and a rich high altar in another cathedral, are pointed at for immediate transference to the melting-pot. Such useless barbarism would be a disgrace to the age; the State that would attempt to save itself by such short-sighted means is not worth the saving.

FIRES BY WHOLESALE.—In the district of Pera, at Constantinople, another of those immense fires which are the curse of this wooden city, has just destroyed upwards of 1,800 houses and shops, occupied by the rich Armenian, European, and Greek population, at a loss estimated at 880,000*l.* The magnificent stone palace constructed by the government for the medical professors of Galata-Seraii, has also been consumed, and a number of large stone houses have been greatly injured.——Orel, a town in Russia, was destroyed by fire on 7th June, and most of the inhabitants lost all they possessed. Upwards of 1,237 houses, including 50 of stone, 80,000 tschetwerts of grain, 100,000 poods of flax, and four bridges, were destroyed. The four stone churches were much injured. The loss is officially estimated at 3,425,000 silver roubles. The Emperor forwarded the sum of 50,000 roubles to the poorer people, and the ministers 10,000 roubles.——The small town of Winsen, in Hanover, has also been visited by a similar catastrophe: 27 houses, and 41 penthouses, were destroyed. The inhabitants were celebrating an annual *schützenfest-fest.* ——Had the coming comet ere now arrived, it would have no doubt had to bear the blame of all the *fires*, physical and psychical, which have lately been *raging* over the face of our unhappy little planet.

TENDERS

For the erection of ten pair of semi-detached Villas, at Albert Grove, Peckham. Mr. R. Tress, Architect.

Coleman, for five pairs		£3,950
Glenn,	five „	3,750
Underhill	five „ (accepted)	3,450
Walbutton,	five „ (accepted)	3,450

For new offices and general repairs at 29, Great George-street, Westminster. Mr. G. Vulliamy, Architect.

Hicks	£1,494
Trollope	1,353
Armstrong and Smith	1,210
Smith and Son	1,211
Kelk	1,084

For two houses at Amherst-road, Shackelwell-green. Mr. Ashpital, Architect.

Lawrence	£1,285	0	0
Clarke	1,263	12	6
G. Carter	1,241	0	0
Lloyd	1,240	0	0
More	1,210	0	0
Glenn	1,194	0	0
Hayworth	1,126	0	0
Laynes	1,120	0	0

TO CORRESPONDENTS.

"*Pipes for Conveyance of Water.*"—In reply to an inquirer, a correspondent recommends the *glazed terra-cotta pipes* as preferable to iron or zinc for the required purpose.

"*J. B.*"—We are unable to further his views.

"*De la Fon's Locks.*"—120, Long Acre.

"*W. C. L.*"—The Institute medals are open to all.

Received.—"R. C. B.," "J. W." (Glasgow), "P. P." "R. S.," "J. E. O.," "J. T. T.," "J. W.," "S. E. R.," "Bude-light Nogo," "C. H. C.," "C. W. O.," "T. W. P." "Westminster Review," July; "Blackwood's Magazine," July; "Tait's Magazine," July: "Dolman's Magazine," July. View of "The Grove." Hammersmith: Messrs. Thompson and Morgan architects. View of Interior of Saffron Walden Church: by W. Doyley. "The Sugar Question, in relation to Free Trade." (Nichols and Son.)

"*Books, Prices, and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

MESSRS. WOOD & Co., DECORATIVE ARTISTS, SIGN and GLASS WRITERS, GRAINERS, HOUSE PAINTERS, and GENERAL CONTRACTORS for REPAIRS, &c. &c.

70, York-road, Lambeth; and 28, Cross-street, Blackfriars-road.

BUILDERS AND CONTRACTORS.

TARPAULINS for COVERING ROOFS during Repairs. SCAFFOLD CORD and every description of ROPE used by Builders upon the lowest terms. Marquees and temporary awnings on sale or hire. Orders per post receive the most prompt attention.—WILLIAM PIGGOTT, 115, Fore Street, City, Manufacturer, by Appointment, to Her Majesty's Honourable Board of Ordnance.

RICHARD A. C. LOADER, 24, Pavement, Finsbury, respectfully solicits all parties about to furnish, and requiring FURNITURE, to inspect his stock, which will be found to consist of the newest designs of Furniture of the best seasoned materials, at the lowest possible prices. An estimate given for any quantity of goods, from one room to an entire house. Books of prices may be had on application, and also books of designs lent. An early inspection is respectfully solicited, and your particular attention to the address is requested in full.—RICHARD A. C. LOADER, 24, Pavement, Finsbury.

R. A. C. LOADER has just introduced a unique and beautiful article of Furniture, which he designates the SULTAN EASY CHAIR, made of fine Spanish mahogany, spring and hair stuffed, and covered with the finest quality of Morocco. The price, complete, 4½ guineas.—The GONDOLA EASY CHAIR, of the same quality, 3½ guineas.

ROCKHILL PAVING STONE.—Shipped direct from the quarries in 'Caithness, or from Mallcott's Wharf, 336, Wapping, on application to ALEXANDER DUNN, 11, Savage-gardens, Tower-hill.—Landing, ex "Ebenezer," a cargo, class No. 11, in 6 feet, 4 feet, and 3½ feet courses.

ARCHITECTURAL CARVING COMPANY, Eccleston-place (late Sir F. CHANTRY'S Foundry), Pimlico, respectfully direct the attention of Architects, Builders, and others to the facility afforded by their Machinery for carrying out with dispatch and accuracy, and at a great saving in expense, the most elaborate Designs in Wood or Stone.—Specimens may be seen and Estimates obtained on application at the Premises.

ITALIAN AND GALWAY MARBLE QUARRIES.

Depot, Bridge Wharf, Pimlico, London, June, 1848.

MR. FRANKLIN, one of the Proprietors of the above Quarries, informs the Sculptors, Marble-Masons, Builders, &c., that he is constantly receiving Shipments of Marble from the Quarries in Italy and Galway.

Just landed, ex "Victoria," 13 tons of Black Marble, cut into slabs of all dimensions.

Ex "Courrier," Leghorn, 200 feet cube of Sienna.
„ „ 200 feet cube, Black and Gold.
"British Queen," ditto 1,000 feet cube of Statuary.

Several Blocks suitable for large statues, from 50 to 100 feet each. Some opened spotless.

Ex "Galway Packet," 500 feet, in block, of Black Marble.

Arrived at Bristol, Redcliff Wharf, "Highland Lad," with 1,200 feet cube of all descriptions of Marble.

TERRA-COTTA, OR VITRIFIED STONE WORKS, King Edward-street, Westminster-road, London.

M. H. BLANCHARD, from late Coade's Original Works, Belvedere-road, Lambeth, begs to inform the Nobility, Gentry, Architects, and Builders, that he has re-established the manufacture of that invaluable material, which has been successfully adopted by our eminent Architects and others, in the adornment of our noblest buildings, nearly 100 years has proved the imperishable nature of the material, the specimens of those times now exhibiting all their primitive sharpness.

Groups, statues, friezes, capitals, panelling, pinnacles, finials, terminals, Tudor, and other chimney shafts, balustrading, fountains, fonts, taxzas, vases, coats of arms, devises, and every description of architectural ornament, at prices in many instances nearly half the cost of stone.

Specimens of the material to be seen at the Office of "The Builder," 2, York-street, Covent Garden, and at the Works

CAEN STONE, from the first Quarries of Allemagne. Depôt at the Whitby and Scotch Wharf, 14, Fore-street, Limehouse.

P. FOUCARD, quai des Abattoirs Caen (propriétaire de Carrières à Allemagne), begs leave to inform Builders, Architects, and others, that he has, on the above-mentioned wharf, 50,000 feet of the best stone ready to meet the demands of purchasers.—Contracts taken for any quantities.

Orders received by Mr. BASCHET, at 39, Stoney-street, Borough Market,—Cargoes shipped to order, from Caen, to any port.

CAEN STONE.—LUARD, BEEDHAM, and Co. beg to inform Architects, Surveyors, Merchants, Builders, and others, they are importing, by large and frequent shipments, CAEN STONE of the BEST QUALITY, from their Quarries at Allemagne, quarried during the late season.

L., B., and Co., invite inspection of persons capable of judging of its quality, at their depôt, Caen Wharf, Rotherhithe.

Orders executed with dispatch to all parts of the United Kingdom.

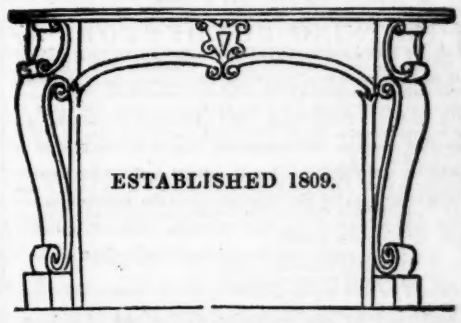
Office, 18, Southwark-square, near Southwark-bridge; Depôt, Caen Wharf, Rotherhithe; and Sur le Quai, a Caen, Normandy.

CAEN STONE.—Original Sufferance Depôt, Norway Wharf, Greenwich.—W. TUCKWELL, Caen Stone Quarry Proprietor and Importer, begs to invite the attention of Architects, Surveyors, Builders, and others to the Stock of CAEN STONE on his Wharf; he is prepared by constant arrivals to execute orders to any extent on the most advantageous terms.—Shipments made to any port direct from his quarries at Caen.

N.B. Orders received at the Wharf, as above; also at the Offices of Mr. R. A. WITHALL, Surveyor, 80, Cheapside, where further information and samples may be obtained.

SLATE SLABS.—The Finest Slabs produced in WALES, of amazing strength, pure in texture, and free from spots, may be had of Mr. MAGNUS, at the PIMLICO SLATE WORKS, Upper Belgrave-place, planed both faces at the price that inferior Slabs in the rough (self-faced) are currently selling. These reduced prices are also subject to a very large trade discount. These Slabs have been extensively used at Buckingham Palace, Strathfieldsaye, the Royal Naval and Military Schools, Deptford, the Model Prison, Pentonville, the Goulstone-square, Baths and Washhouses, on most of the Railways, and are specified for by the most eminent architects. Whole cargoes supplied direct from Mr. Magnus's Works in Wales, planed both faces, at very low rates. Slate Tanks, Fittings for Dairies, Larders and Wine Cellars, Landings, Cantilevers, Chimney Pieces, &c. &c.

BUILDERS, MASONS, &c., will find a considerable reduction in the price of Marble Work, at the WESTMINSTER MARBLE WORKS, from the great improvements made in Working and Polishing Marble by Patent Machinery. All orders are executed in a style entirely unequalled.



The business of this establishment is so arranged as to be a great advantage to the trade, from the great variety of Chimney-pieces and Monuments always on view, and sold at a very low charge; also the liberal commission always allowed to the trade.

Westminster Marble Company, Earl-street, Millbank.

ANSTON STONE, used for Building the New Houses of Parliament.—W. WRIGHT and Co. beg to inform Architects, Engineers, Builders, and others, the Anston Stone can be supplied in any quantity on the shortest notice. This valuable stone, so celebrated for its durability, colour, and texture, is well known, having been selected in preference to all others, by the Commissioners of Woods and Forests, for building the New Houses of Parliament. It is very superior for Monuments, Tombs, &c. &c. Facilities are at hand for forwarding it to all parts of the Kingdom.—Application to be made to W. WRIGHT and Co., Anston, near Sheffield, Yorkshire.

ANSTONE STONE, used in the erection of the NEW HOUSES OF PARLIAMENT.

Mr. GRISSELL has the honour to inform Architects and gentlemen engaged in Building, that in consequence of having nearly completed the above works, he is at liberty to supply the Anstone Stone for building purposes in general.

The price at which it can be delivered in London does not exceed the price of Portland stone. As to quality and colour, the experience of the past seven years will fully attest its superiority.

It is also preferable for staircases and rubbed landings, for which purposes it can be supplied in any sizes; and as regards cost (with the exception of common paving), it is not more expensive than "York."

In addition to the New Houses of Parliament, Mr. Grissell takes leave to refer to the Museum of Economic Geology, just erected in Piccadilly; to the Amicable Assurance Office in Fleet-street; and to the New Hall in Lincoln's-Inn-fields.

Mr. Grissell desires also to state, that the stone, which he has now the honour for the first time to offer to the public, and which has been used exclusively in the above works, is from the estate of his Grace the Duke of Leeds, and that Mr. Grissell alone possesses the right of quarrying this stone.

11, New Palace-yard, Westminster.

ANSTON, or ANSTONE STONE.—W. WRIGHT and Co. deem it important to state the Anston Stone offered by them is from the same bed as that from which the New Houses of Parliament are being constructed, a hedge alone being the division of the properties of the Duke of Leeds and W. Wright and Co.

*** "Anston" is the name of the village, and is correctly spelled without the E.

By Her Majesty's Royal Letters Patent.

GLASS VENTILATORS FOR WINDOWS.

BAILLIE'S Patent Transparent Slide Valve VENTILATORS, supplied at a reduction of 40 per cent. from the original Tariff. Their extensive and successful application to public offices, bed-rooms, and the cure of smokey chimneys, prove their great utility. Coloured Glass of every tint at wholesale prices.—Designs and estimates for church and ornamental windows forwarded on application to EDWARD BAILLIE, Glass Painter, Stainer, and Embosser, 12a, Cumberland Market, Regent's-park, London, where specimens are to be seen.

DR. ARNOTT'S CHIMNEY VENTILATOR.

F. EDWARDS, Stove Maker to her Majesty, 20, Poland-street, Oxford-street, begs to call the attention of Architects, Builders, Gas-fitters and the Public, to the truly invaluable advantages to be derived from the use of Dr. Arnott's Valve for the Ventilation of Rooms of every description.

Prices from 7s. 6d. to 20s. each. A prospectus, containing full particulars, to be had on application.

SMOKY CHIMNEYS—NO CURE, NO PAY.

Twenty-five years' extensive experience in all the branches of a stove manufacturing business, and the cure of smoky chimneys of every description, fully justifies F. E. in stating that he can undertake the cure of smoky chimneys on the above equitable terms.

CAST-IRON PIPES, IRON WORK FOR OVENS, &c.

RAIN PIPES, &c.—F. A. TIDDEMAN, Purfleet Wharf, Earl-street, City, near Blackfriars-bridge, keeps a large stock of Rain Pipes, Heads, Shoes, Elbows, &c., half round and O. G. Gutters, Socket Pipes for Water or Gas, Flanch Pipes, Sash Weights, and other Castings; Iron Work for Baker's Ovens of every description, fitted complete, to be had in sets or in parts.—Prices equal to all competition. Contracts taken to any extent.

TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS.

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, Kept for Hire.

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FLEXIBLE INDIA-RUBBER PIPES AND TUBING,
For Railway Companies, Brewers, Distillers, Fire Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANIZED INDIA-RUBBER HOSE-PIPES are made to stand hot liquor, and acids without injury—do not become hard or stiff in any temperature (but are always perfectly flexible) and as they require no application of oil or dressing, are particularly well adapted for locomotive engines, railway cranes, fire engines, pumps, gas, beer engines, gardens, and all purposes where a perfectly flexible pipe is required. Made all sizes, from ¼ inch bore upwards, and of any length to order. Vulcanized India rubber garden hose fitted with brass-taps, copper branch and roses complete, ready to be attached to pumps, water-butts, or cisterns. Sole manufacturer, JAMES LYNE HANCOCK, Goswell-mews, Goswell-road, London.

N.B. Vulcanized India-rubber washers of all sizes for joints or hot-water and steam pipes, and vulcanized sheet rubber any thickness for all kinds of joints, and other purposes.

TO ARCHITECTS, BUILDERS, &c.

COPPER-WIRE CORD.—R. S. NEWALL and Co.'s PATENT IMPROVED COPPER-WIRE CORD for WINDOW SASH LINES, Hot-houses, Lightning Conductors, Hanging Pictures, Clock Cord, and various other purposes for which hempen rope has hitherto been used. This new and valuable Patent is fast superseding the use of the hempen cord, and is strongly recommended to all builders and other parties connected with the above. The Wire Cord may be had wholesale, and specimens seen at the office of the Patentees, No. 163, Fenchurch-street, W. T. ALLEN, Agent; or retail of G. and J. DEANE, 46, King William-street; E. PARKS, 140, Fleet-street; T. JONES, 62, Charing Cross, and GIBBONS and CO., 345, Oxford-street; also of all respectable Ironmongers.

LIGHTNING CONDUCTORS for BUILDINGS.—SMITH'S PATENT COPPER WIRE ROPE is being daily employed for the protection of CHURCHES and other buildings from the effects of thunder-storms. It possesses important advantages over other forms of conductors. References can be given where it has been applied for some time past to CHURCHES, PUBLIC and PRIVATE BUILDINGS, &c. &c. Its general adoption in the Naval and Mercantile Marine of this and other countries is the strongest possible EVIDENCE of its EFFICIENCY, &c.

SMITH and ENGLISH beg the attention of those engaged in building to their IMPROVED PATENT PANELLED and REVOLVING IRON SHUTTERS.—Also, the Patent Weather-tight Fastening and Cill Bar, for French Casements, which are so much admired for their security, simplicity, cheapness, and efficiency. Of the merits of their

Patent Double and Single Action Door Springs,
Improved Flooring Cramps,
Patent Wire Sash Lines, &c. &c.,

little need be said, as they are pretty generally known and appreciated.

Manufactory for Iron Suspension, Sliding, and other Doors, Strong Rooms, Plain and Ornamental Palisading, Gates, and Columns.—Also, Metal Sashes, Shop-fronts, Stall-board Plates, Brass, Butt, and other Hinges. Buildings heated upon a new, safe, and superior plan.

Estimates given for every description of Metal-work.

SMITH and ENGLISH, 69, Princes-street, Leicester-square, London.

BURBIDGE and HEALY, 130, FLEET-STREET, LONDON, beg respectfully to inform the Building Public that they fit up COOKING ARRANGEMENTS for large Mansions, with patent appliances on scientific principles, which ensure greater economy and efficiency than hitherto attained. Also HOT WATER APPARATUS, upon improved and scientific principles, which they recommend for its peculiar safety for the Warming of Mansions, &c.

They fit up Laundries with Hot Water Apparatus, for Drying in a cleanly, expeditious, and safe manner. They also fit up BATHS with elegant arrangements, with every modern scientific improvement. Also Apparatus for the plentiful supply of Hot Water for Baths and general use of Mansions and large establishments.

TO BUILDERS and CARPENTERS.—Elliptic Stoves, double backs, 3d. per inch. Registers, 6½d., 7d., 8d. per inch.

Cottage Ranges, with Oven and Back Boiler, 3 ft., 38s.; 3 ft. 2 42s.; 3 ft. 4, 44s.; 3 ft. 6, 46s.

Self-acting Ranges, with Circular Oven and Back Boiler, best Wrought Bars and Bright Fittings,
3 ft., £3. 3s. 3 ft. 6, £3. 12s. 6d. 4 ft., £4.

Best Patent Cut Clasp.

5d.	6d.	8d.	11d.	1s. 4d.	1s. 10d. per 1,000.
3d.	4d.	6d.	8d.	10d.	20d.

Best Sheet Floor Brads 14s. per cwt.
Best Town Glue 38s. Do. Scotch, 52s. per cwt.
Best Patent Sash Line.

4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.
1	2	3	4	5	6

At F. R. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 33, Chiswell-street, Finsbury-square.

Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.

N.B Warehouse closes at Seven o'clock.

TO ARCHITECTS, BUILDERS, &c.

R. HENLY and Co., WHOLESALE IRONMONGERS, and Manufacturers of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.

Strong Self-acting Kitchen Ranges, with Back Boiler and Oven, and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3. 6s.	£3. 13s.	£3. 16s.	£4.	£4. 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£5.	£5. 15s.	£6. 5s.	£6. 10s.	£7.

Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.

Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.

Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

OLD-ESTABLISHED WHOLESALE IRONMONGERY WAREHOUSE, Kitchen-range, and Stove-grate Manufactory, 18, Cross-street, Walworth.

JOHN GRICE most respectfully solicits the attention of Architects, Builders, and Carpenters, to his Stock of Black and Bright Stoves, Kitchen Ranges, &c., &c.

Black Registers, from 6½d. per in. and upwards.

Bright ditto with Black and Bright Bars, 2l. 10s. and upwards.

Self-acting Kitchen Ranges, with Oven and Back Boiler, Wrought Bars, Fittings Bright:—

3 ft.	3 ft. 6 in.	4 ft.
2l. 3s.	2l. 14s.	4l. 8s.

All articles made on the premises and warranted, and delivered free of expense within five miles of London. Bell-hanging in superior style, hung in secret, 9s. per pull.

LAP WELDED IRON TUBES.—W. H. RICHARDSON, Jun., and Co., MANUFACTURERS of every description of WROUGHT IRON TUBES for Locomotive and Marine Boilers, Gas, Steam, and other purposes.
PATENT TUBE WORKS, DARLASTON, STAFFORDSHIRE

IRON FOUNDRY, 9, Brick-lane, Old-street, St. Luke's.—J. J. JONES having made great additions to his STOCK OF PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns, Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.

BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

IRON FOUNDRY,
163, DRURY-LANE, and CHARLES-STREET, DRURY-LANE.
JOSEPH GLOVER,

Solicits the attention of the Trade to his extensive Stock of PATTERNS for CASTINGS of EVERY DESCRIPTION, consisting of those for every purpose, either structural or ornamental.

Wheel Pinion and Steam-Engine Patterns; Range Stove and Hot Plate Metal.

A stock of Rain-Water Pipes, Plain and O G Guttering, Air Bricks, Sash Weights, &c. &c.

A very superior description of Soot Door, particularly suitable for internal work, being perfectly secure, and not unsightly.

ESTIMATES given for IRON ROOFING and every description of Ironwork, complete to specification, and the work executed with every attention to quality and dispatch.

GLOVER'S FOUNDRY,
163, DRURY-LANE, and CHARLES-STREET.

MESSRS. HOPKINS and Co. solicit the attention of Architects, Builders, Upholsterers, and the Public generally to their REGISTERED SELF-REGULATING BLINDS, which, dispensing entirely with the centre line, is peculiarly suited to French casements and high windows. OUTSIDE SUN BLINDS ON IMPROVED BALANCE ACTION.

H. and Co. are the sole manufacturers of BARRON'S PATENT METAL GROOVE ACTION, contrived for the easy and noiseless carriage of curtains on Brass or Wood Poles. This action has been much used, and with invariable success for octagon, bow, and other shaped windows. Models constantly on show.

HOPKINS and Co., late James Barron, Window Blind Manufacturers, Cabinet and General Brass Founders, 40, Castle-street, East, Oxford-street, London; and at Birmingham.

JENNINGS, Patentee of the SHOP SHUTTER SHOE and FASTENER, which requires NO BAR; of the INDIA RUBBER TUBE COCK, PATENT JOINT, &c. &c.—29, Great Charlotte-street, Blackfriars'-road.

SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS, Manufactory, 96, REGENT-STREET and 121, CHANCERY-LANE. Patent sealed on the 4th day of February, 1845, for Fourteen Years, for Improvements in Revolving Shutters of WOOD and IRON, consisting of Six Methods of Raising and Lowering Shutters, without Machinery, and Two for Hinging and Sheathing the Edges of Wood Laths with Iron.—The Patentee having fixed up some hundreds, will feel pleased in forwarding the Testimonials of Architects, Principals of large Establishments, and others, having them now in use, which fully guarantees the Patentee in stating they are beyond dispute superior to any other Revolving Shutter for durability, security, and simplicity, without the use of cog-wheel worm and screw gear, or any other complicated machinery employed by other makers.

BUNNETT and CORPE, ENGINEERS,
Patentees of
REVOLVING IRON AND WOOD SAFETY SHUTTERS,
and of
ORNAMENTAL METALLIC SASH BARS, MOULDINGS, &c.,
IN BRASS, COPPER, ZINC, &c.

Beg respectfully to solicit a comparison with the Revolving Shutters (either iron or wood) of any other Makers, whatever their pretensions. The extraordinary demand, arising from the universal satisfaction given, for BUNNETT and CORPE'S PATENT REVOLVING SHUTTERS (of which some thousands have been fixed in all parts of the Kingdom), having induced other parties to attempt the introduction, by the most absurd representations, of sundry old and discarded inventions as Improvements, B. and C. assure their Friends and the Public that, during their most extensive use, they have adopted every really practical improvement that skill and experience could suggest. A great reduction has also been made in the price, and they are now much CHEAPER, as well as BETTER, than any others.

The prices of the Patent Metallic Sash Bars, &c. have been revised and reduced; Shop Fronts, &c., completely fitted and fixed in a superior style, either plain or ornamental. Strong drawn moulded stallboard plates handsomely engraved. Shop Fronts, &c., completely glazed with best plate glass.

SKYLIGHTS manufactured to any design or extent in Wrought or Cast-iron, Copper, or Zinc.

B. and C. are also sole licencees for MARVIN and MOORE'S PATENT DIAGONAL GRATINGS, for areas at shop fronts, for shop, warehouse, and balcony floors, &c., which does not obstruct the light, yet admits of Ladies walking over or standing on the same.

IMPROVED PATENT BENCH AND FLOORING CRAMPS FOR BUILDERS.

Patentees of Self-Acting Effluvia Traps for Sewers, Drains, &c.

Manufacturers of Improved Steam Engines, Sawing and other machinery, especially adapted for builders' purposes, which may be seen in operation, daily, at the Works, Deptford, Kent.

Estimates given, and Contracts taken, in town or country. Patterns, and every particular may be obtained, on application at the Office of the Patentees, 26, Lombard-street, London; and at the Works, Deptford, Kent.

PATENT CONVEX REVOLVING IRON SHUTTERS, recently manufactured, under license, by the late firm of R. HOWARD and Co., Old-street.
HARCOURT QUINCEY, Patentee.

CLARK and Co., Manufacturers, beg to call the attention of Architects, Builders, and others, to the IMPORTANT IMPROVEMENTS in the above Shutters, and inspection invited at their Manufactory, 238, Wapping, or at their Agents, 456, New Oxford-street. The great importance of strength and stiffness in the laths of REVOLVING IRON SHUTTERS, in affording increased security, is obvious, and it is only necessary to point out the fact, that the patent convex laths are twelve times stronger than the ordinary flat laths, to insure their general adoption.

CLARK and Co. also invite attention to their greatly improved gearing, for raising and lowering the patent Shutters, which, possessing all the advantages of the endless screw (worm and wheel), cannot, even by wear, be liable to run down, and entirely avoids the necessity of using the ratchet-wheel, and is at once simple and thoroughly effective, and is SAFER and MORE DURABLE than any plan yet adopted for that purpose; thus rendering the Patent Revolving Shutters the SAFEST and MOST EFFECTIVE in use. These Shutters are fixed horizontally (either above or below the window or door), or vertically, for which position the greatly increased strength of the convex laths renders them peculiarly suitable; and one, as applied to a doorway, may be seen any day after Four o'clock at the Britannia Life Assurance Office, corner of Princes-street, Bank.

CLARK and Co. are the SOLE MANUFACTURERS of REVOLVING SHUTTERS, WITH CONVEX IRON LATHS. Engravings and Prospectuses forwarded on application. IMPROVED DRAWN METALLIC SASH BARS, ASTRIGALS, MOULDINGS, STALL-BOARD PLATES, &c.

Steam Engines always on hand, Sawing and Planing Machinery of every description made to order. Wrought-iron Box, and Cast-iron Girders for bridges, buildings, &c.—CLARK and Co., Engineers, 238, Wapping, or at 456, New Oxford-street, London.

WEBB and GREENWAY, Brass Founders, and Lock Manufacturers, York-street, Birmingham, beg to call the attention of Architects, Builders, and Cabinet-makers to their REGISTERED KNOB CUPBOARD TURN, having a shifting spindle, fast tongue, and stop washer rose, it being a considerable improvement upon the ordinary article.

BRASS and GUN METAL CASTINGS.—Present price for Castings above 1 lb. weight each:—Brass, 9½d. per lb.; Gun Metal (common), 10½d. per lb.; Gun Metal (best), 13½ oz. copper to 2½ oz. tin, 12½d. per lb.

J. TYLOR and SON, Brassfounders, Warwick-lane, Newgate-street, London.

TO ARCHITECTS AND BUILDERS.

CHUBB'S WROUGHT-IRON and FIRE-PROOF DOORS and FRAMES, for strong Rooms. A large stock of the above, of all sizes, made in the best manner, and of different strengths, fitted with CHUBB'S PATENT DETECTOR LOCKS, throwing from two to twenty bolts, constantly on sale, at very moderate prices. FIRE-PROOF SAFES of every size, and Patent Detector Locks and Latches for all purposes.—C. CHUBB and SON, sole Manufacturers, 57, St. Paul's Churchyard, London.

SAFETY LOCKS and COMBINATION LATCHES for STREET DOORS, and PATENT DETECTOR LOCKS, lower than any house in London, may be obtained from J. and S. TURNER, Ironmongers and Manufacturers of these invaluable Locks and Latches, with small neat keys, warranted equal in quality to any locks made, and secure against picklocks and false keys. Cabinet, Desk, and Box Makers, Builders, Plate Chest, Pianoforte, and Hat-case Makers supplied with Articles of the best quality on advantageous terms.

Agents for Milner's Fire-Proof Safes and Boxes, Cash Boxes, with Detector Patent Locks, City-road, opposite the Vinegar Works.—Manufactory, Brickln-street, Wolverhampton.

By Her Majesty's — Royal Letters Patent.

BAILLIE'S PATENT ROUNDED RIM LOCKS,
WITH SECRET AND SECURE FIXINGS.

THIS CHEAP and USEFUL ARTICLE obviating the unsightly appearance and insecurity of the common rim lock, can be obtained from the Manufacturers, Messrs. CARPENTER and TILDESLEY, Willenhall; or from the sole Agent, Mr. JOHN FAULKNER, Ironmonger, 62, St. Martin's-le-Grand, London, opposite the new Money-Order Office.

T. PUGH'S REGISTERED RIM LOCK.—T. PUGH and Co. beg to invite the attenton of Architects, Builders, and others, to these new Rim, Drawback, and Dead Locks and Latches, in either brass or iron, possessing great advantages in form, over the usual Rim Lock, and also in the quality, and produced at very moderate prices; each lock is warranted perfect and complete, with patent shifting spindles.—To be had only of T. PUGH and Co., 13, King-street, Snow-hill, City, at their Ironmongery Warehouse, where they keep an extensive and most complete stock of hammered and cut nails, iron and brass foundry, mortice locks and latches, plain, half-rabbeted, and rabbeted; porcelain, glass, ivory, buffalo horn, wood, and all kinds of fancy mortice lock furniture; all goods of the best manufacture, and of the same superior quality they have been accustomed to send out for upwards of the last twenty years.

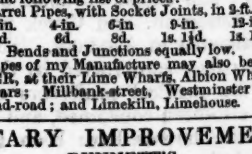
PRO BONO PUBLICO.

CAUTION to Purchasers of FIRE-PROOF DOORS for Strong Rooms, Safes, Chests, and Detector Locks, &c. &c. LEADBEATER, many years manufacturer for Chubb.

LEADBEATER begs most respectfully to inform Architects, Surveyors, Builders, &c., that he can supply them with IMPROVED DETECTOR LOCKS for universal purposes. STRONG WROUGHT IRON FIRE-PROOF DOORS, SAFES, and CHESTS, &c., on the most improved principles of security against FIRE and THIEVES, without the aid of "expensive machinery," which is employed by some inexperienced makers, but must be paid for; at prices 25 per cent. under any other house in London.

LEADBEATER offers ONE HUNDRED POUNDS reward to any person who can pick his improved detector locks or latches. Some thousands of Leadbeater's strong-room doors and safes have now been put up without a SINGLE COMPLAINT, and fifteen years' practical experience, during which he has adapted every possible improvement to real security, enables him to challenge competition with any house in London. A large assortment of all sizes on sale and made to order. A pair of extra strong wrought-iron fire-proof folding-doors with ventilating gates, made expressly for a banker's strong room, may be viewed at his manufactory. Strong wrought-iron doors for party walls, with wrought-iron rabitted frames, and secured by the BEST DETECTOR LOCKS in ENGLAND, 6 feet high by 2 feet 2 inches wide and upwards, price 10l, each, always on hand at LEADBEATER'S MANUFACTORY, 125, ALDERSGATE-STREET, LONDON.

UNION BROWN STONE POTTERY,
CHEMICAL APPARATUS, and DRAIN-PIPE MANUFACTORY, 14, Vauxhall-walk, Lambeth. Patronised by Her Majesty's Commissioners of Woods and Forests, and by the Metropolitan Commissioners of Sewers.



WILLIAM NORTHEN, Inventor of Salt GLAZED BROWN STONE SOCKET DRAIN-PIPES, in every variety of shape, begs to call the attention of Architects, Surveyors, Contractors, and Others to the following list of prices:—

Straight Barrel Pipes, with Socket Joints, in 2-ft. Length

2-in.	3-in.	4-in.	6-in	9-in.	12-in. bore.
4d.	5d.	6d.	8d.	1s. 1½d.	1s. 10d. per foot

Bends and Junctions equally low.

N.B. Drain-pipes of my Manufacture may also be obtained of Messrs. ROSHER, at their Lime Wharfs, Albion Wharf, Holland-street, Blackfriars; Millbank-street, Westminster; Kingsland Basin, Kingsland-road; and Limekiln, Limehouse.

SANITARY IMPROVEMENTS.
BUNNETT'S
PATENT SELF-ACTING EFFLUVIA TRAP
For Sewers and Drains of all kinds.
Registered January 5th, 1848.

A cheap, durable, and most effectual means of preventing the escape of noxious vapours, it is entirely self-acting and self-cleansing, cannot get out of order, and may be readily applied in all situations without altering the present gratings.

The above is a most important improvement on all contrivances of the kind, and is manufactured in various sizes to suit all purposes, specimens of which may be seen, and also working models, at the office of Messrs. BUNNETT and CORPE, Engineers, 26, Lombard-street, London: and at the works, Deptford, Kent.

LAMBERT'S PATENT FLEXIBLE DIAPHRAGM HIGH-PRESSURE WATER-TAPS.—This application of the Vulcanized Caoutchouc (prepared expressly for these valves, with layers of canvas amalgamated therein), having now stood the test of two years' trial with perfect success, the Patentees beg to point out some of its many important advantages over the old plug and other taps and valves. First,—The security from leakage, let the pressure be ever so great. Its extreme durability, the parts in contact with the water being free from friction; the ease with which it is opened and closed; it never gets stiff or set fast for want of use, neither is it liable to injury by frost; they can be made in iron, and at a less cost than any other taps, and are exceedingly well adapted for ball or cistern valves, and in no instance have they been known to fail; many hundreds have been fixed, to which reference can be given with the greatest confidence.

THOMAS LAMBERT and SON, Patentees and Sole Manufacturers, 30, New Cut, near the Blackfriars-road, London.